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ABSTRACT

Results from the first federally sponsored study of the chiropractic health care profession are presented, and a broad range of facts and issues of concern to policy-makers, the profession, and the public are described. The two-year project included three national surveys of: service providers (doctors of chiropractic in practice more than two years); recent graduates (doctors of chiropractic who have received their degrees in the last two years); and chiropractic colleges. Information was obtained on the following areas: cost of education and characteristics of educational programs; supply and distribution of doctors of chiropractic and their practice characteristics; estimated utilization of chiropractic services; adequacy of supply; and expenditures on chiropractic care. This report is divided into two volumes, the first of which presents the findings and conclusions of the 1978-79 study and how the study was completed. Volume two contains appendices, including a glossary of terms, copies of the survey questionnaires, the educational requirements of chiropractic colleges, and descriptions of sample sizes and survey procedures and other background materials. (SW)

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VOLUME I

CHIROPRACTIC HEALTH CARE:

A NATIONAL STUDY OF COST OF EDUCATION, SERVICE UTILIZATION, NUMBER OF PRACTICING DOCTORS OF CHIROPRACTIC, AND OTHER KEY POLICY ISSUES

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Thomas von Kuster, Jr.

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The Foundation for the
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Tenets and Science
1901 L Street N.W.
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Bruce Nordstrom, D.C.
Project Director

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February 7, 1980

The Honorable Harrison Williams, Jr.
Chairman, Committee on Labor and
Human Resources
United States Senate
Washington, D.C. 20510

and

The Honorable Harley O. Staggers
Chairman, Committee on Interstate and
Foreign Commerce
House of Representatives
Washington, D.C. 20515

Dear Chairmen Williams and Staggers,

We are pleased to provide to you, the members of your respective committees and the United States Congress with a report on the chiropractic profession as was mandated under section 903 of public law 94-484.

As you know, this is the first federally chartered study of chiropractic which addresses the issues of cost of education, cost and utilization of services, and supply of doctors of chiropractic throughout the United States. While we recognize that this is but a first step in the accumulation of data relative to the practice of chiropractic in the United States we are pleased with the quality of the data and are confident that it will add light rather than heat to your deliberations on health care and chiropractic.

We would feel remiss if we did not point out the presence of a recently completed study, October 23, 1979, by the Commission of Inquiry on Chiropractic conducted by the Governor-General of New Zealand under directive of that government's House of Representatives. This study, in a most thorough and objective manner, investigated many areas not covered by our report and the two studies complement each other extremely well. We feel quite strongly that anyone studying chiropractic should review both reports

Foundation for the Advancement of Chiropractic Tenets and Science, Suite 800, 1901 L St., N.W., Washington, D.C. 20036, 202/659-6476

before attempting to draw any conclusions. Copies of the New Zealand Report have been made available to the Department of Health, Education and Welfare through our Project Officer or we would be happy to provide copies to you and any members of your committee and staff from our Washington office.

Once again, it was a pleasure for us to gather this information for you and should you have any questions, please do not hesitate to contact us.

Sincerely,

Joseph P Mazzarelli, DC

Joseph P. Mazzarelli, D.C.
President

JPM/jmm

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JUL 21 1980

STATEMENT OF COST AND PERSONNEL RESPONSIBLE FOR REPORT

This report is made pursuant to Contract #HRA 231-77-0126. This amount charged to the Department of Health, Education and Welfare for the work resulting in this report (inclusive of the amounts so charged for any prior reports submitted under this contract) is $250,039.86. The names of the persons, employed or retained by the contractor, with managerial or professional responsibility for such work, or for the content of the report, are as follows:

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We would like to thank several individuals and groups who helped throughout the project and were available at important times to insure the successful completion of this project.

The Project Directors from FACTS, J. F. McAndrews, D.C., during the developmental stages of the study, and Bruce E. Nordstrom, D.C., during the final six months of the analysis and writing of the report, gave support and direction to the entire undertaking. The Project Officer, Thomas Hatch, provided valuable, patient and understanding assistance throughout the two year long study.

Special mention must go to the author of this report, Thomas von Kuster, Jr., for it could not have been possible without his exceptional efforts. His contributions from inception through to completion were key to the success of the project.

Staff and consultants at Thomas von Kuster and Associates who made major contributions to the report included Gary L. Appel, Ph.D., who served as our health economist, Curtis L. Sippel, M.S. and Mary Bochnak, M.B.A.. Data processing was ably completed by Bruce Mattson, Ph.D., Joyce Mattson, Ph.D., M. Ennouri, M.B.A. and Manika Sukhatme, M.A.

The professional advisory group, chiropractic college presidents, the FACTS board and the HEW review panel were most helpful in shaping the final report.

Many thanks are due the members of the chiropractic profession and the colleges who responded to the surveys and provided data for this historically significant study.

Joseph P. Mazzarelli, D.C.
President
FACTS

ABSTRACT

This report presents the most comprehensive information ever gathered and analyzed regarding chiropractic health care in the United States. The project is the first federally sponsored study of chiropractic to look at a broad range of issues of concern to policy makers, the profession and the public. Congress mandated this research through passage of the "Health Professions Assistance Act" (P.L. 94-484 Sec. 903). The topics of investigation are:

- Cost of education and characteristics of educational programs
- Supply and distribution of Doctors of Chiropractic and their practice characteristics
- Estimated utilization of chiropractic services
- Estimated expenditures on chiropractic services
- Indicators of adequacy of the supply of Doctors of Chiropractic

The report is divided into two volumes. Volume I presents the findings and conclusions of of the study and how the study was completed. Data was collected in 1979 through the use of three national surveys of segments of the profession:

- Service Providers, Doctors of Chiropractic in practice more than two years
- Recent Graduates, Doctors of Chiropractic who have received their degrees in the last two years
- Chiropractic Colleges

Volume II is the Appendix for the report and includes a glossary of terms, copies of the questionnaires for each of the three groups surveyed, the educational requirements of chiropractic colleges, descriptions of sample sizes and survey procedures and other background materials.

The objective of the study was to describe the profession in such a manner that the Congress, the profession, federal agencies and the general public can be better informed about chiropractic which has survived and grown for 85 years without federal assistance or control. Specific findings of the study include:

- About 23,000 Doctors of Chiropractic (D.C.) are currently practicing in the United States.
- This number will increase by between 10,000 and 13,000 D.C.s who will be graduated from college in the next five years.
- An estimated $1.3 billion is spent on chiropractic care annually.
- Doctors of Chiropractic received approximately 130 million patient visits in 1979.
- The average annual cost of education per student in chiropractic colleges is $3,310. The average length of a degree program is 4.0 academic years, in addition to the prerequisite of two academic years of post-secondary education.

The study also raises some policy questions for the federal government, the chiropractic profession, members of the health care delivery system and the public at large based on these and other findings.

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EXECUTIVE SUMMARY

This report presents results from the first federally sponsored study of the chiropractic health care profession to describe a broad range of facts and issues of concern to policy makers, the profession and the public. Congress mandated the study through passage of the "Health Professions Assistance Act" (P.L. 94-484, Sec. 903). The report contains the most comprehensive information ever gathered and analyzed regarding chiropractic. The project took two years to complete and includes three national surveys of:

- Service Providers, Doctors of Chiropractic in practice more than two years
- Recent Graduates, Doctors of Chiropractic who have received their degrees in the last two years
- Chiropractic Colleges

The study was extraordinarily difficult to complete. A series of events made data collection of any kind very challenging. The past poor relations between the profession and HEW, a dearth of prior research experience about the profession, delays in getting approval of key parts of the study, and poor public relations for chiropractic at key times when the questionnaires were in the field all created problems which had to be overcome. The study results are quite rewarding given the scope of the events which hindered the research.

This summary presents first, selected key findings from each of the five major topics of investigation, and second, some policy implications and projections regarding findings from the project.

Key findings by major topic areas include:

Cost of Education and Characteristics of Educational Programs

- o The average annual cost of education per student is $3,310, for the chiropractic colleges. Unadjusted for inflation this is lower than dentistry, medicine, optometry, podiatry, veterinary medicine and osteopathy, but higher than nursing and pharmacy (as measured by the 1974 Institute of Medicine study mentioned in Section 3).

- o By the end of 1979 there were 16 operating schools of chiropractic nationally. These colleges had about 7,900 students enrolled in 1978. They serve national and regional labor markets.

- o The average length of a degree program is the equivalent of 3.5 calendar years (4.0 academic years), prior to which students must complete two academic years of post-secondary education mainly in science courses.

Supply and Distribution of Doctors of Chiropractic and Their Practice Characteristics

- o There are about 23,000 active D.C.s seeing patients and accepting fees in the United States. About 3,000 of these D.C.s graduated from chiropractic colleges in the last two years.

- o Between 10,000 and 13,000 new Doctors of Chiropractic will enter the labor force in the next five years after graduation from the 16 colleges now operating. This will cause a 35% to 48% net increase in the number of practicing D.C.s given that only 7% of those currently active in the profession say they plan to retire or leave practice within five years.

- The national D.C. population ratio per 100,000 people is 10.1. However, D.C.s are not distributed evenly across the United States. The range among the four major census regions is 14.0 in the Western Region to 8.0 in the Southern Region; among states the range is even wider -- from 23.0 in Iowa to 1.8 in Virginia.

- The survey reflects the tremendous variety of practice in the profession in terms of income, level of activity, types of services offered, location of practices and types of practices. The typical D.C. has a solo practice, works 43 hours per week and 49 weeks a year, is located in a town of between 25,000 and 100,000 people and has a gross practice revenue of just over $63,400 per year. Only 10.1% of the D.C.s work less than 30 hours total per week and fewer than 7% spend less than 20 hours per week in patient care.

- Chiropractic Assistants (C.A.) are being recommended for use in D.C.s practices at professional seminars and by the professional associations. The use of one C.A. is believed by practicing D.C.s to be able to almost double any one D.C.s productivity. Four chiropractic colleges are now training C.A.s and more are considering the addition of such a program. (No estimates of numbers of projected C.A. graduates was made.)

Estimated Utilization of Chiropractic Services

- o About 130 million patient visits were received by Doctors of Chiropractic in 1979; over 122 million by the active service provider group and about 8 million by recent graduates.

- o The most frequently used services are spiral adjustments which are offered by all D.C.s. Over 60% of D.C.s currently offer some form of physiotherapy treatment to patients; the most frequently mentioned was ultrasound.

- o A D.C.'s patients are on the average 56% female, 75% white, and 78% between 18 and 64 years old. They have typically been referred by another one of the D.C.'s patients (over 70%). The patient visits fall into one of three categories of conditions -- acute injury (37.4%), maintenance/preventative care (25.1%) and chronic conditions (38.4%).

Adequacy of Supply

- o The new graduates entering the market over the next five years will increase the net supply of available services by at least 35% to 48%.

- o Retirements will decrease services by 7% and the expected reduction in work load would decrease the expanded availability of services another 1% over the next five years.

- Expanding use of Chiropractic Assistants (C.A.) may also expand the supply of available services significantly, because of the use of a C.A is believed by chiropractors to be able to almost double one D.C.'s production and at present about 60% of all practices do not employ them.

- There is no present indication that these new entrants will have problems establishing a practice and be absorbed into chiropractic's care delivery system. While there is no objective evidence on the saturation point for D.C.s, this study has uncovered several pieces of subjective evidence suggesting that there is yet an unmet demand for more D.C. services which is likely to remain for at least several more years.

Expenditures on Chiropractic Care

- Total expenditures on chiropractic care were approximately $1.3 billion in 1978.

- The average new patient pays about $53 for his first visit which includes $30 for X-rays and $23 for an examination. "Old" patients pay an average of $14 for a patient visit and spinal adjustment and $16 for a spinal adjustment with one physical therapy treatment. Typically, these patients do not have additional X-rays taken.

- Over the last five years, 1974 to 1979, fees for D.C. services have increased at a slightly lower rate (55%) than medical fees (58%).

- From 1978 to 1979, the charges for D.C. services have increased more rapidly (14%) than medical fees in general (9%) as measured by the medical portion of the Consumer Price Index (August 1978 to August 1979).

- We uncovered no reasons to expect that future increases in fees for chiropractic services will be at rates which differ from that of other health care services.

POLICY IMPLICATIONS OF THE STUDY

Almost all groundbreaking studies of this type have as the end result, a longer list of unanswered questions than at the start. This study is no exception. While we now have accurate data on such matters as the number of practicing D.C.s and the services they provide, this is but a beginning in the understanding of this often controversial profession. In summary form we describe below the key issues which yet remain for future policy research.

Should the Federal or State Governments Fund Chiropractic Education?

From the data obtained in this study it appears that chiropractic is thriving and even growing. The number of schools of chiropractic have dropped from about 80 in the 1920s to 10 in 1969, but this climbed to 16 in 1979 and the student populations have been climbing since 1969; the training has been upgraded; and recently more schools are planning to start. Without government assistance the profession has continued for 85 years and appears stronger today than before.

Is there then a need for government assistance? In the opinion of many key leaders in the chiropractic profession there is a sizeable need for more D.C.s and the highest possible professional educational standards, which they believe can be met only through the inflow of government funds for education support. However, this study in the main does not answer this question but there are some considerations which the data can reflect on to create some working hypotheses.

- There is no indication from the subjective evidence in this report that there is a saturation of the D.C. labor market anywhere in the country. More D.C.s are likely to be readily absorbed into the D.C. labor market as they are graduated.

- There are indications that the existing supply of D.C.s can expand their capacity to deliver services. Waiting times do not appear long (72% one day or less) and a substantial portion (68%) of practicing D.C.s desire to expand their practices significantly. However this expansion may be limited because only 30% of responding D.C.s indicated they are willing to work more hours per week or more weeks per year.

- There will be a rapid expansion of D.C.s if the current college enrollment pattern continues. Practicing D.C.s will increase by almost 35% to 48% within five years and services will be expanded by more than that by the use of Chiropractic Assistants.

- There is no objective measure of the ultimate need for D.C. services or the labor market saturation point. This study did not estimate the size of unmet need.

If government funds were provided for educational support they could be used in three main ways; (1) tuition could be reduced, (2) faculty and facilities and curriculum upgraded, (3) numbers of graduates increased.

This study indicates that the D.C. profession is almost totally white male. While this is changing for more recent classes, government support to reduce tuition for minority groups might significantly change the ratio of the practitioners toward a more balanced mix.

The schools of chiropractic are committed to continue attempts to upgrade the curriculum and educational requirements of the profession. There is reason to believe that further developments in both the educational as well as research components could be made with added financial support. Exactly where and how these changes would be implemented depends on the final position chiropractic occupies in the overall pattern of health care delivery. However, it is clear from the study results that some of the facilities do not meet the Council on Chiropractic Education (CCE) faculty/student standard ratio of 1:15.

Chiropractic education is almost entirely supported by revenues generated by tuition, fees and clinic income rather than gifts or government subsidy. This evidence of financial self-sufficiency suggests that the schools could continue to expand enrollments without added outside financial support. However, one can speculate that this may not always be the case, particularly as the schools continue to upgrade the level of training and as a result increase tuition. Outside support may be needed for combined requirements of more students and upgraded education but evidence from this study is not sufficient to conclude firmly one way or the other.

Are There Enough D.C.s?

Answers to questions like this are extraordinarily difficult to answer directly. If, as more students of the health care system suggest, members of the health professions have significant abilities to generate demand for their services, efforts to judge adequacy of supply are almost self-defeating. The subjective evidence developed by this study suggests, however, that substantially more D.C.s could be absorbed in the existing D.C. labor market. Whether the expected rate of increase in D.C.s (about 8 to 9% per year) is "acceptable," or too small, or too large is not clear from the study results. Further research on the determinates of D.C. service demand are required for a more definite answer.

A subset of the question of adequacy of D.C. supply is the issue of what are the essential elements and boundaries of the profession. This question still causes a major schism within the field. Spinal adjustment is of course the initial function, but to what extent will D.C.s be viewed by the public as a source of other services such as nutritional counseling? Without answers to this type question adequacy of supply can never be more than crudely estimated.

On the same subject, the views and roles of chiropractic may well be going through major changes over the next few years affecting the use of D.C. services. Chiropractic is increasingly being included in private third-party payer coverages; overt hostility and alleged boycotting of D.C.s by other medical professions may end if pending anti-trust actions in Illinois and New York are successful; the image of the profession may improve, as some claim, as the level of training improves. Any liberalization in D.C. coverage in Medicare/Medicaid could if enacted have very significant effects on D.C. service use. Additionally, there is no indication that the younger population is any less inclined to use chiropractors. In fact, 41% of all services are provided to persons between the ages of 18 and 45, which indicates the possibility of sustained utilization.

How many more D.C.s will actually be readily absorbed in the future labor market can at present only be speculated. But on balance, the trends and tendencies observed in this study indicate a relatively positive future for D.C. use and do not indicate that there will be an over-supply of D.C.s in the forseeable future. We just do not know more than this.

Areas for Future Study

The result of this study is a broad range of useful descriptive data which for the first time can be used by the profession and the general public. Subsequent studies to address these topics are suggested below.

- $1.3 billion is spent annually on chiropractic services. It seems reasonable to suggest that more research be done to better understand chiropractic procedures and services.

- Better estimates of consumer demand are important to making enlightened policy decisions regarding chiropractic. We suggest a national survey of actual and potential consumers of chiropractic services to determine (1) the proportion of the population using chiropractic care services and (2) the characteristics of those who do and do not use these services and some of the determinates why people use this service, and (3) measurement on as many dimensions of the effectiveness of chiropractic care as one can from patients themselves.

- Labor market analyses might be done periodically to find out whether the relatively large number of graduates expected in the next five years is able to be absorbed in productive practice or not. Similarly, the likely changing character of demand for services should be closely monitored because it has the potential to produce wide shifts in service use.

o Regular national surveys of the profession such as this could be repeated periodically to establish trend information regarding variables important for the profession and policy makers -- patient visits, fees for services, types of practices, and indicators of labor market conditions.

Concluding Remarks

Almost from its very beginning chiropractic has existed outside the traditional medical care delivery system. It has not made the major transition to allopathic medicine and joined Medical Doctors as have Osteopathic physicians. Neither has it found a totally comfortable place in a more narrow aspect of health care as have the Optometrists and Podiatrists. Likewise the D.C.s are not viewed as support personnel for Medical Doctors as are Registered Nurses, Physical Therapists and the many other allied health professions.

But despite a lack of government funding and at times strong hostility from more traditional medicine, chiropractic has continued and there is evidence that it may grow in the near future. This initial national study of chiropractic provides a broad range of data on the current status of the profession. Hopefully, this will be a start to more extensive analysis of how chiropratic fits into the continually changing pattern of health care providers.

SECTION 1

INTRODUCTION

This report is the first federally sponsored study of chiropractic health care issues of concern to policymakers, the profession, and the public. It provides the most comprehensive data ever gathered and analyzed about chiropractic, including such topics as:

- Cost of education and characteristics of educational programs
- Supply and distribution of Doctors of Chiropractic and their practice characteristics
- Estimated utilization of chiropractic services
- Estimated expenditures on chiropractic services
- Indicators of adequacy of the supply of chiropractors

The report is divided into two volumes. Volume I includes the Abstract, Executive Summary, Introduction and five Sections covering the five major topics of discussion. Volume II consists of the Appendices containing a glossary of terms, copies of the questionnaires, educational requirement data for the colleges, and other pertinent materials of interest to some readers.

This Introduction briefly discusses the five major topics of the report, provides a short history of the study and summarizes the history of the profession.

THE FIVE MAJOR TOPICS OF THE REPORT

Most of the information contained in this report is unique -- never before gathered and analyzed. Little data has been available about chiropractic colleges and practices. It is hoped that this will provide a base for future study of the chiropractic profession. Below we discuss the five major topics of investigation noted above:

- o Cost of Education and Educational Program Characteristics

  One goal was to find the average annual cost of education for chiropractic students, which could be be compared with other health professions. This cost is found to be \$3,310 (and ranges from \$2,758 to \$4,487). The average cost of graduating a Doctor of Chiropractic through a complete program of study is \$12,382 (ranging from \$8,313 to \$16,670), not including two years of required pre-chiropractic study.

  This educational cost is also divided into its components so they can be examined in more detail both on aggregate and per student bases. Characteristic information about each school was gathered so that the programs could be described in terms of support received, educational requirements, use of facilities, etc.. These are described in Section 3, Cost of Education and Program Characteristics for Chiropractic Chiropractic Colleges, and in Appendix II, Educational Requirements of Chiropractic Colleges.

- o Supply of Doctors of Chiropractic and Their Practice Characteristics

A problem in the past has been that no accurate count of active/practicing D.C.s was ever conducted. We compiled information to determine the numbers of active D.C.s, the growth in future supply of D.C.s and factors which affect their abilities to deliver more services. We found an estimated 23,000 Doctors of Chiropractic active at many different levels of effort. We also examine the potential growth in the future supply of chiropractors and factors which affect their abilities to deliver more services. Over 10,000 new Doctors of Chiropractic may graduate in the next five years. These results are discussed in Section 5, Supply of Doctors of Chiropractic. In addition, Section 5 presents findings regarding the demographics of practicing D.C.s, their practice characteristics, and their levels of work effort.

o Estimated Utilization of Chiropractic Services
Objectives of this aspect were to describe the services provided by D.C.s and to estimate the number of patient visits to D.C.s. We found that D.C.s who have been in practice at least two years receive about 122.5 million patient visits a year with more recent graduates receiving another estimated seven to ten million patient visits. The report also describes how frequently 33 services of chiropractors are provided during a typical week and to what estimated proportion of patient visits.

Section 4, Chiropractic Service Utilization, also contains some brief descriptions of selected characteristics of chiropractic patients, including age, sex, race, referral source, condition, distance from the office, method of payment, etc.

The original Request for Proposal used terms such as investigating "demand for chiropractic services" in describing this phase of the project. In the study proposal we emphasized the term "utilization" and other subjective indicators instead of "demand" due to time-cost limitations on the scope of the study. The research problems and substantial added costs which would be incurred in actually satisfactorily estimating "demand" for any medical/health related service were recognized by the departmental staff and those reviewing the project. Thus, the alternative approach was viewed as logical, innovative and cost effective.

o Expenditures on Chiropractic Services
It is important to determine charges for chiropractic services and interesting to see how rapidly they may be increasing versus medical care fees as described by the Consumer Price Index. Total expenditures on chiropractic care in the United States exceed $1.2 billion annually, consisting of about $400 million in X-ray services and $800 million in office visit fees. Section 7, Cost of Service, discusses the fees charged for selected individual services this past year and how rapidly they have grown in one year (since 1978) and the last five years (since 1974). Additional analysis considers variation in fees across the United States and the factors which may affect service charges.

- Indicators of the Adequacy of Supply of Chiropractors
  Several indicators are developed relative to whether there are enough D.C.s to meet current and future use of chiropractic services. Several subjective indicators support the idea that more D.C.s can be absorbed by the chiropractic labor market. For example, 80% of practicing D.C.s believe that more chiropractors can be added in their states and 67% believe that more can be added to their counties of practice. In addition, the density rate per 100,000 population varies widely by state (from 2 to 23) and region (from 8 to 15). On the other hand, some indicators show that currently practicing D.C.s can handle more patient visits suggesting the possibility that supply may already be reasonably adequate. Further, as noted above, a large increase in the number of D.C.s may occur in the next five years. In Section 6, regarding adequacy of supply, these and other indicators of adequacy are discussed and analyzed.

HISTORY OF THE STUDY

The Congress has declared health professionals to be a national resource and has taken steps to insure that adequate health care services are available in order to improve the public welfare. Federal resources, therefore, continue to be made available to increase the supply of of a wide variety of needed health manpower -- currently excluding chiropractic. This study is a direct result of the enabling legislation for such support. The "Health Professions Educational Assistance Act" (P.L. 94-484 Sec. 903) mandated a report to Congress on the supply and demand for chiropractic services, the cost of education for a Doctor of

Chiropractic, and the current costs of chiropractic services with an analysis of how they have changed over the last five years. The study was to be conducted by a non-profit group under contract with HEW.

Study Group

The contract was awarded in October 1977 to a non-profit chiropractic research group, FACTS, The Foundation for the Advancement of Chiropractic Tenets and Science. FACTS was founded in 1977 by the International Chiropractic Association, a professional association organized in 1926. To insure an impartial study the firm of Thomas von Kuster & Associates, Minneapolis, Minnesota, was employed by FACTS to help design the study, gather and analyze the data and draw conclusions in the final report.

Study Supported by the Chiropractic Profession

In the past, the service delivery system for chiropractic care has been particularly difficult to assess. This results from philosophical divisions within the profession, its long-standing battle with the organized medical community and its uncertain status in select states and among certain health care consumers. Thus, the scant data available on key topics of importance had to be expanded and improved. This is the first federally sponsored effort to receive the support of the chiropractic profession and provides a unique opportunity to examine one of the few health professions which have survived without federal, state or other governmental support.

Cooperation from all the groups of the profession has been excellent, especially considering the concerns raised by the belief of many D.C.s that past studies of their profession have been intentionally unfavorable. One main goal has been to develop a more complete and unbiased analysis of chiropractic.

Scheduling the Study

The study has proceeded on schedule. The major delay in the project occurred during the application and receipt of Office of Management and Budget (OMB) clearance for mailing questionnaires. This took over eight (8) months. However, the study benefited substantially from the clearance process; the quality of the study results improved because of expanded sample sizes and follow-up procedures that resulted from federal decisions made during this time.

Study Limitations

As with any groundbreaking study faced with limited time and money resources, this study has some limitations. These are pointed out in the report where appropriate. (A summary of key problems, however, can be found in Appendix IV)

Ideally, an in-depth study of such issues as supply and demand for chiropractic services would include econometric analyses of extensive data from surveys of training programs, graduates, practicing chiropractors and consumers, etc. It would measure demand for chiropractic services, not only in terms of current use of chiropractic service, but also as a function of changes in price, insurance coverage and other key variables. Such measurement was beyond the scope of this study. Our use of the term, "demand" is a more primitive, yet relevant, definition in which services are defined, measured and described in terms of such variables as geographic location, density of chiropractic penetration and total quantity of services provided per capita. The high cost of primary data collection and the time constraints imposed on this study precluded a more sophisticated form of research.

Brief History of the Profession and Its Colleges

The origins of the practice of chiropractic can be traced back about 85 years to the spinal adjustment approach of the late D. D. Palmer, beginning in 1895. Since that time the number of active/practicing chiropractors grew to an estimated 17,559 in 1974.[1] At the same time the number of schools for training chiropractors has varied enormously. In the past, one estimate found 500 schools once offered chiropractic training. In this current study we found practicing D.C.s who were were graduates from 54 different schools. In 1973, it was estimated that some 4,684 students were then enrolled in chiropractic colleges and 654 students were graduated that year.[2]

The most current count made for this study shows 23,000 active chiropractors practicing in the United States (not including about 2,000 inactive or retired D.C.s). There were about 7,900 students in 1978 enrolled in chiropractic colleges, which is a 57% increase since 1974 and represents an increase of over three times the enrollment in 1969.

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[1] Health Resources Statistics, Health Resources Administration, National Center for Health Statistics, Rockville Maryland, 1976.

[2] National Resources Statistics, U.S. Public Health Service, Washington, 1976.

The number of operating chiropractic colleges is now sixteen (16) with three more planned to open. One of these 16 schools just began operation in the last year. The ten schools in operation since 1969 or longer have graduated 89.6% of all D.C.s currently practicing for at least two years or more. Of those ten schools open in 1969, seven had survived two world wars and one depression; two, a depression and a world war; and one, a world war.

While nearly all the colleges began as proprietary institutions owned by their founders, currently all chiropractic colleges are established as independent non-profit institutions receiving funds necessary for operation mainly from student tuition, gifts and donations. Federal support of these institutions in the form of educational grants and stipends has been virtually non-existent to date. However, many members of the chiropractic community believe that such assistance will be critical to the task of upgrading facilities, teaching and support staff and training quality in the face of the current economic inflation.

Accreditation of chiropractic colleges is primarily the responsibility of the Commission on Accreditation of the Council of Chiropractic Education (CCE) and since 1974, this body has been approved by the federal government as the accrediting agency.

Schools are becoming more demanding in their admission requirements. Higher Grade Point Average (GPA) levels are being set, and specific basic science prerequisites are included in the required two-year post-secondary level of education needed for admission to a school of chiropractic. Once admitted, the average length of study at a school of chiropractic to obtain a Doctor of Chiropractic degree is the equivalent of 3.5 calendar years (4.0 academic years).

During the recent history of the profession, philosophical differences on the appropriateness of certain services offered by chiropractors have developed. These differences are illustrated in two approaches to practice: (1) those whose care is confined almost exclusively to adjustment of spinal vertebrae, and (2) those where additional forms of treatment, i.e., ultrasonics, diathermy, ultraviolet (heat and light), acupuncture, etc. may be prescribed for a large number of functional disorders related to all musculo-skeletal problems.

Similar to other health professions, chiropractic training programs and their graduates have encountered increasing requirements over the years from state and national regulations. Licensing was first required in Illinois and Kansas by 1913. By 1960, 46 states (and the District of Columbia) required a license to practice, and by 1974 licensure requirements existed in every state.

SECTION 2

A DESCRIPTION OF THE STUDY

Overview of Survey Procedures and Response

The findings reported in this document were developed from three separate survey procedures:

- A survey of all chiropractic colleges -- nine schools received formal questionnaires, the other six smaller operating and planned schools were surveyed informally, and one college president who was a member of the study's advisory group also completed a formal survey. Selected data was received from all of the operating colleges (See Table 1). The survey booklets used for data collection appear in Appendix III, Volume II.

- A survey of Doctors of Chiropractic -- 3,265 doctors were surveyed using a probability sample stratified by state. The response rate was 53%, by far the highest for any recent survey of D.C.s. The results are reported from both national and regional perspectives.

- A survey of recent graduates of chiropractic colleges -- all (100%) of the last two years' graduates from 13 colleges which have graduated D.C.s were surveyed (three schools have not existed long enough to graduate a class). The response rate was 68%, very high given that recent graduates enter into practice and frequently move.

Purposes of Data Collected

The intent was to gather four sets of information: First, educational cost and other descriptive data was gathered from the colleges in a format similar to the Institute of Medicine Study completed in 1974 regarding eight health professions.[1] Second, demographic and other data descriptive of Doctors of Chiropractic, recent graduates of chiropractic colleges, their practices and their patients were needed for background and analysis regarding supply of D.C.s and utilization of services. Third, data on frequency of patient visits and the types of services offered by practicing chiropractors and chiropractic colleges were needed to examine utilization, supply and adequacy of supply issues. Fourth, information regarding chiropractic service charges was requested from practicing doctors and chiropractic colleges.

Surveys Gathered Data for Cross Checking Results

The project team made efficient use of the survey forms by gathering data from the groups surveyed regarding each major issue except cost of education (only available from the colleges). This was necessary because little secondary data has been available regarding the profession. The small number of past studies provided useful, but limited, background information. Further, HEW had no past experience in gathering data from this profession about such a wide variety of topics.

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[1] Costs of Education in the Health Professions, Institute of Medicine, Washington DC, 1974.

Excellent Response Rate

The quality of the response from all three groups surveyed was excellent. The extensive questionnaires were completed thoroughly and thoughtfully by respondents. There were some minor differences between the characteristics of respondents and non-respondents, especially among the recent graduates; this is discussed later in this section. Nevertheless, the data from respondents is very comprehensive, and we see no biases in the data which limit the usefulness of the responses for description and analysis in this report.

Detailed Discussion of Survey Design and Implementation

The remainder of the section is devoted to a detailed description of the steps we went through to complete the survey and analyze portions of the project. The order of discussion will be:

Chiropractic Advisory Group and HEW Review Panel - Selection

Chiropractic Colleges - Data collection and procedures
o Purposes of the effort
o Sample selection
  - Questionnaire design and pretest
  - Mailing and follow-up procedures
  - Response rates

Recent College Graduates - Survey design and procedures
o Purposes of the effort
o Sample selection
o Questionnaire design and pretest
o Mailing and follow-up procedures
o Response rates
o Non-respondent survey results

Practicing Doctors of Chiropractic - Survey design and procedure

- Purposes of the effort
- Developing a universe of practicing D.C.s and sample selection
- Questionnaire design and pretest
- Mailing and follow-up procedures
- Response rates
- Analysis of non-response and non-respondent survey results

Chiropractic Advisory Group and HEW Review Panel

An early step of the survey plan was to appoint an advisory group to represent all the facets of the profession. (The members are listed in Appendix VII) This has proved helpful from two standpoints: First, gaining profession-wide support for the survey (which is important given the past conflicts and lack of cooperation within the profession and with past controversial studies done by HEW regarding chiropractic). Second, the advisory group has provided valuable suggestions on both survey design and analysis issues to the FACTS staff about the general and technical aspects of the profession. This was useful in developing the list of services provided by D.C.s included in the Service Provider Questionnaire (See Appendix III, Service Provider Questionnaire, question 26).

Midway through the project, HEW selected a review panel to comment on the study plan before its results were sent to Congress. The panel members are health manpower economists, educational consultants, and experts in program accreditation standards (They are listed in

Appendix VII). The panel members reviewed the study and had one meeting with the contractor. This meeting provided some valuable information and direction for the final analysis.

Chiropractic Colleges - Data Collection and Procedures: Purposes of the Effort

Data to be collected from the chiropractic colleges was required for every phase of the project. For example, opinions on the labor markets for graduates are important for D.C. personnel and services indicators of "demand;" estimates of graduates to be produced over the next five years are important for analysis of supply of D.C. personnel; and services offered by the college clinic provide a benchmark for comparison with D.C.s currently in practice. The thrust of the data collection was to determine the average cost of education per first degree chiropractic student (Doctor of Chiropractic degree) using a methodology which parallels that used by the Institute of Medicine in 1974. This was done to allow some comparisons between chiropractic and other health professions. Another group of data that could only be gathered from the colleges concerned current educational requirements. Thus, requests for information from chiropractic colleges took several forms.

Sample Selection

The project required some information from all colleges, such as educational requirements data, and some information from a sample of the colleges, such as cost of education data. Table 1 presents a summary of our requests for and responses with data from the 16 operating or planned colleges known at the start of the project, October 1977. (Since that time three more

TABLE 1 - STUDY

COLLEGE RESPONSES TO INFORMATION REQUESTS
INFORMATION REQUESTED

COLLEGE	Educational Requirements**		Graduate Mailing Lists	Informal Information Requests*	Formal Survey Response
	Catalogue Received	Modification Made			
Adio	No	No	**	Yes	NA
Cleveland (Kansas City Mo)	Yes	Yes	Yes	Yes	Yes
Cleveland (Los Angeles)	Yes	No	Yes	Yes	NA
Life	Yes	Yes	Yes	Yes	Yes
Logan	Yes	No	Yes	Yes	Yes
Los Angeles	Yes	Yes	Yes	Yes	Yes
National	Yes	No	Yes	Yes	Yes
New York	Yes	No	Yes	Yes	Yes
Northern California	Yes	Yes	**	Yes	NA
Northwestern	Yes	No	Yes	Yes	Yes
Pacific States	Yes***	-	**	Yes	NA
Palmer	Yes	No	Yes	Yes	Yes
Pasadena	Yes	Yes	Yes	Yes	NA
Sherman	Yes	No	Yes	Yes	NA
Texas	Yes	Yes	Yes	Yes	Yes
Western States	Yes	Yes	Yes	Yes	Yes

*Includes educational requirements data, preliminary budget information, student enrollment and other data requested. Nearly all schools tried to be as helpful as possible in providing the information requested.

**No class has yet been graduated.

***Received too late for inclusion.

schools have indicated that they plan to begin operation in the next few years. Little information is available regarding these schools and they are not included in this study.)

The first two columns indicate (1) that all but one school provided us with catalogs from which we developed an educational requirements summary for each college; (2) whether any changes were made after each school had the opportunity to review our findings (more on the educational requirements study is in Appendix II).

The next two columns indicate responses by the colleges to our informal and formal requests for information. All colleges received informal requests for available information regarding audited and projected budgets, student enrollments, student application forms and procedures, and other prepared materials regarding their programs.

In addition, ten colleges, including one member of our advisory group were chosen to participate in a formal survey. These ten schools were selected because (a) they represented colleges at different levels of accreditation status (all but three have been fully accredited the end of the project; (b) they included different ages of programs, some newer schools and others in existence from the beginning of chiropractic education; (c) all ten colleges had good recordkeeping abilities; and (d) these ten schools produced over 85% of chiropractic college graduates of the last two years.

Questionnaire Design and Pretest

All study topics were included in the formal college surveys sent to ten selected schools. This required an extensive set of questions and the questionnaires were divided into three separate booklets:

- Booklet I: Academic Year, Student Enrollment, and Job/Labor Market for Graduates
- Booklet II: Faculty, Facilities and Budget
- Booklet III: Clinic Facilities

Each booklet was designed to be completed by one individual so that respondent burden would be lowered. The questions in Booklet II were carefully designed to gather data to enable comparisons with the Institute of Medicine study of other health professions. In developing and defining budget categories, chiropractic college budgets were reviewed to make completing the questionnaire as simple and standard as possible. A pretest set of questionnaires was sent to four colleges whose comments and suggestions were most helpful in developing a useful survey instrument. Furthermore, Health Resources Administration staff reviewed the questionnaire thoroughly and made valuable changes and suggestions. The final copy appears in Appendix III.

Mailing and Follow-up Procedures

The ten colleges received the questionnaires in Spring 1979. Through telephone contacts with the colleges we followed the progress of the respondents and answered any questions they might have had regarding interpretation of the questions. If a college required replacement pages or booklets they were mailed to the college.

If a college respondent appeared to misinterpret an important question, the college was called for clarification and the materials returned to the college. The procedures produced excellent results. Limitations of response regarding cost of education are noted where appropriate in Section 3, Cost of Education and Characteristics of Chiropractic Colleges.

Response Rates

Cooperation was excellent among the colleges. Again, looking at Table 1, one notices that some information was received from every college and that there was a 100% response to the formal survey. Furthermore, item response in that survey was also 100% for nearly all questions.

Survey Design and Procedures for Recent Graduates: Purpose of the Effort

The major purposes of the recent chiropractic college graduate survey were to describe (1) how readily recent graduates are absorbed by the labor market (i.e. what proportion are practicing? how difficult was it for them to go into practice?) which serves as one or more indicator(s) of the "demand" for Doctors of Chiropractic and the services they provide and (2) where graduates were locating their practices across the United States.

Sample Selection

The survey of recent graduates was designed to include those D.C.s who had received their degrees within the last two years (October 1976 to December/January 1978/79). An inventory of the entire set of recent graduates (3640 from the 13 colleges)[1] was decided to be necessary for several reasons. Sub-national comparisons were required by the study design thus requiring a minimum sample size of about 700. This would produce reasonably precise estimates for comparing recent graduates among the census regions. However, there are several cross-tabulations such as rural-urban and income, that required larger numbers of responses. Further, comparisons of the recent graduates with the practitioner survey are desired, which typically requires an even larger sample size. To enable the more detailed comparisons a complete inventory of recent graduates was determined to be worth the cost.

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[1] Three colleges, as noted earlier, have not yet graduated any students.

Questionnaire Design and Pretest

Copies of the questionnaires sent to the recent graduates appear in Appendix III. The questionnaires were reviewed by the chiropractic advisory group, Health Resources Administration staff and the HEW review panel. They were pretested with nine recent graduates. Problems regarding respondent comprehension were resolved. Modifications were made in a question phrasing and/or response categories. These results and comments improved the survey instrument design. The pretests were also valuable in assessing the likelihood of participation in the study and in judging the magnitude of respondent burden. In both these respects the recent graduates survey appeared very acceptable to the respondent population.

Mailing and Follow-up Procedures

The four mailings completed for this survey included: an initial first class mailing containing a cover letter describing the survey, a questionnaire booklet with Privacy Act Disclosure, and a return envelope; two more mailings with duplicate contents and only slight differences in the cover letter; and finally a personal letter requesting the respondents cooperation with the survey, for the purpose of raising the response rate.

When response failed to reach 75%, a small sample (23) was selected and telephone contact to encourage response was attempted. Over 43% did not have phone numbers in the city of their original address and could not be contacted. Nearly all those contacted said they would respond but had mislaid their questionnaires and required another. Nevertheless, because so few of the non-respondents could be found, further efforts to follow up recent graduates to improve response were abandoned.

Response Rates

The response rate for the survey of recent graduates was 68% (61% unadjusted for not forwardables). This is much higher than originally anticipated. The response rates for graduates of individual colleges appears in Table 2. One can see that for some colleges the response is as high as 75% unadjusted, or 87% adjusted for not forwardables. This response is excellent given the mobility of graduates who recently left colleges and are organizing their practices.

Non-Respondent Survey

A non-respondent survey was conducted by telephone of those recent graduates who did not respond to the main survey (See Appendix III for a copy of the forms). Primarily because of the aging of the mailing lists over the course of the project (9 months from the first mailing), the researchers cannot determine from the

TABLE 2 - STUDY

GRADUATE SURVEY RESPONSE

SCHOOL	SAMPLE SIZE	NUMBER OF RESPONSES	UNADJUSTED RESPONSE RATE PERCENT	NOT FOR-WARDABLE	PERCENT OF TOTAL	ADJUSTED RESPONSE RATE PERCENT
CLEVELAND (LA)	332	190	57%	36	11%	64%
CLEVELAND (KC)	160	87	54%	24	15%	64%
LIFE	164	109	66%	9	5%	70%
LOGAN	344	239	69%	27	8%	75%
LOS ANGELES	316	161	51%	99	31%	74%
NATIONAL	499	208	42%	42	8%	46%
NEW YORK	308	206	67%	19	6%	71%
NORTHWESTERN	8	78	72%	15	14%	84%
PALMER	938	644	69%	47	5%	72%
PASADENA	177	106	60%	16	9%	66%
SHERMAN	152	96	63%	7	5%	66%
TEXAS	109	68	62%	16	15%	73%
WESTERN STATES	36	27	75%	5	14%	87%
		2**	-	-	-	NA
	3643*	2221	61%	362	10%	68%

* TWENTY-FOUR NOT INCLUDED IN THE SAMPLE ARE DUPLICATES (2), EARLIER GRADUATION (8), NOT YET GRADUATED (1), C.A'S (13).

** SCHOOL NOT IDENTIFIED

non-response survey whether the group of non-respondents is different from those who responded to the survey. Over 220 randomly selected contacts were attempted and 56% of these were not listed by the telephone companies at their former addresses or their cities of residence given by the mailing list. Table 3 also shows that less than 30% of those in the sample could be contacted.

This is not believed to be a major problem in using recent graduate data in the study for three reasons: (1) the recent graduates represent only 3,600 of 23,000 practicing D.C.s, (2) data on D.C.s in practice over two years is statistically reliable (as noted below), (3) if a larger number of recent graduate non-respondents could have been contacted the group differences from the respondents might have been less.

Of the 64 calls completed there appear to be some differences in certain areas (See Table 4). Nearly all those contacted were in practice versus 15% of the main sample that had not yet entered practice. The year in which degrees were received also varies from the sample.[1] Other areas where variation appears include: The number of states in which graduates are licensed -- fewer non-respondents are licensed in more than one state; the size of town in which practices are located -- more non-respondents are located in large cities;

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[1] The college mailing lists sent to us did not indicate in which year students graduated from a program, and the numbers graduating in any year could not be accurately cross-checked with college responses in the college surveys because graduation takes place year round at the schools.

TABLE 3 - STUDY

NON-RESPONDENT SAMPLE AND RESPONSE RATE FOR RECENT GRADUATES

	N[1]	%
NOT LISTED	125	56
COMPLETED CALLS	64	28.7
NO ANSWER	28	12.6
WERE PRACTICING BUT NOT THERE NOW	4	1.8
NOT AT LOCATION	2	.9
	223	100.0%

[1] Included in completed calls are calls to nine practicing D.C.s who were going to call back but did not.

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TABLE 4 - STUDY

Page 1

COMPARISON OF RESPONDENTS AND NON-RESPONDENT FOR SELECTED QUESTIONS RECENT GRADUATES

		RESPONDENTS (UNWEIGHTED) PRECENTAGE	NON-RESPONDENTS PERCENTAGE
SEX OF D.C.			
MALE		89.9%	89.1%
FEMALE		10.1%	10.1%
		100.0%	100.0%
	N=2072		N=64
PRACTICING OR NOT			
CURRENTLY ACTIVE		84.0%	97.0%
NO LONGER ACTIVE		.9	1.5
NEVER ACTIVE		15.1	1.5
		100.0%	100.0%
	N=2128		N=64
YEAR D.C. DEGREE WAS RECEIVED	1976	8.9%	25.9%
	1977	40.6	50.0
	1978	46.9	22.2
	1979	3.6	1.9
		100.0%	100.0%
	N=2128		N=54
NUMBER NOW LICENSED TO PRACTICE	YES	91.9%	100.0%
	NO	8.1	0
		100.0%	100.0%
	N=2223		N=54
MONTH & YEAR D.C. LICENSE WAS RECEIVED			
BEFORE GRADUATION		3.3%	0%
AT GRADUATION		10.5	10.8
W/IN 6 MO. OF GRADUATION		66.2	70.3
W/IN ONE YEAR OF GRADUATION		15.0	13.5
OVER ONE YEAR AFTER GRAD.		5.0	5.4
		100.0%	100.0%
	N=2042		N=37

DEGREES AWARDED IN DECEMBER '78 AND JANUARY '79 ARE INCLUDED IN THE STUDY.

TABLE 4 - STUDY (Continued) Page 2

COMPARISON OF RESPONDENTS AND NON-RESPONDENTS FOR SELECTED QUESTIONS

RECENT GRADUATES

	RESPONDENTS (UNWEIGHTED) PRECENTAGE	NON-RESPONDENTS PERCENTAGE
NUMBER OF STATES IN WHICH THE D.C. CURRENTLY HOLDS A LICENSE TO PRACTICE		
ONE	65.9%	72.2%
MORE THAN ONE	34.1	27.8
	100.0%	100.0%
	N=1951	N=54
MONTH & YEAR D.C. BEGAN PRACTICE		
W/IN 12 MO. OF GRADUATION	90.2%	80.8%
OVER 12 MO. AFTER GRADUATION	9.8	19.2%
	100.0%	100.0%
	N=1789	
SIZE OF CITY OR TOWN IN WHICH PRACTICE IS LOCATED		
SMALL TOWN	7.7%	5.6%
LARGE TOWN	28.7	14.8
SMALL CITY	26.8	27.8
LARGE CITY	22.0	48.1
SUBURBS	14.9	3.7
	100.1%	100.0%
	N=1790	N=54

TABLE 4 - STUDY (Continued)

COMPARISON OF RESPONDENTS AND NON-RESPONDENTS FOR SELECTED QUESTIONS

RECENT GRADUATES

TYPE OF PRACTICE	RESPONDENTS (UNWEIGHTED) PERCENTAGE	NON-RESPONDENTS PERCENTAGE
PRIVATE	56.8%	75.0%
ASSOCIATE/COMMISSION	24.8%	9.6%
GROUP/PARTNERSHIP	13.8%	13.5%
OTHER	4.6%	1.9%
	100%	100%
	N=1787	N=52
SIZE OF GROUP/PARTNERSHIP	SD=1.0 2.5 AVERAGE	2.25 AVERAGE
	N=569	N=12

RATING OF HOW WELL ESTABLISHED THE PRACTICE IS ON A SCALE OF 1 TO 5*	RESPONDENTS (UNWEIGHTED) PERCENTAGE	NON RESPONDENTS PERCENTAGE
1 NOT WELL ESTABLISHED	10.0%	11.5%
2	37.2%	13.5%
3 MODERATELY WELL ESTABLISHED	25.7%	25.0%
4	19.7%	28.8%
5 WELL ESTABLISHED	7.3%	21.2%
	99.9%	100%
	N=1784	N=52

*This scale has been reduced from 1 to 7 RANGE to 1 to 5 RANGE

NUMBER OF D.C.s WHO WOULD CONSIDER LEAVING THE PRACTICE IN THE NEXT FIVE YEARS	RESPONDENTS (UNWEIGHTED) PERCENTAGE	NON RESPONDENTS PERCENTAGE
NO	90.4%	85.1%
YES	9.6%	12.8%
DO NOT KNOW	0.0%	2.1%
	100%	100%
	N=1568	N=47

SIZE OF AREA IN WHICH D.C. RESIDES	RESPONDENTS (UNWEIGHTED) PERCENTAGE	NON RESPONDENTS PERCENTAGE
SMALL TOWN	0.0%	11.9%
LARGE TOWN	25.0%	19.0%
SMALL CITY	39.3%	26.2%
LARGE CITY	28.6%	38.1%
SUBURB	7.1%	4.8%
	100%	100%
	N=1818	N=42

type of practice -- more non-respondents are in private practice; and how well established a graduate feels his practice has become -- a larger proportion of non-respondents felt their practices to be more well-established. Thus, we should caution the reader that projections made from the returns from the group of recent graduates may not present a completely accurate picture of all recent graduates. Nevertheless, the data from respondents is quite comprehensive, and we see no biases in the data which limit the usefulness of the responses for most description and analysis in this report.

Survey Procedures and Design for Doctors of Chiropractic: Purposes of the Effort

There were five main purposes, as noted earlier, to the survey of active Doctors of Chiropractic. Briefly, these included (1) developing an estimate of the number of active D.C.s in the United States, (2) gathering descriptive data regarding D.C.s and their practice, (3) estimating the number of patient visits received by D.C.s, (4) describing the services offered by D.C.s and (5) developing cost of service information for this past year (1979) and in prior years (1978 and 1974).

Creating a Universe of D.C.s and Sample Selection

A major task of this study was enumerating a universe of all potentially active D.C.s in the United States. It was decided that the best method was to use lists from these sources: state license lists and/or state association membership rosters from all fifty states and the District of Columbia and association membership lists for the two major chiropractic associations. The state license lists included over 29,000 names and addresses. These were cross-checked for duplicates with other states and association membership lists. This resulted in a list of just of over 23,000 names. From this list we deleted all recent graduates surveyed in the survey of recent graduates. This left a universe of 21,383 licensed Doctors of Chiropractic who had been out of college at least two years before December 1978. These were considered the most accurate available universe of D.C.s either practicing or available to enter the labor force to provide chiropractic services ever compiled.

We did not sample unlicensed, but trained D.C.s for two reasons; first, this group cannot readily enter chiropractic practice because current National Board and license examination requirements in nearly all states are believed too difficult for all but recent graduates to pass; and second, this group is not locatable.

A Sample for State by State Analysis

The original goals for the study expressed by the Health Resources Administration (HRA), (in the Request for Proposal), and our proposal emphasized the desirability of making state by state comparisions. Therefore, a probability sampling procedure was selected to allow these comparisons. The sample was stratified by state, and enough D.C.s were chosen in each state to achieve a certain level of statistical confidence in the results (See Appendix IV for the procedures used, universe, and the number selected from each state). A total of 3,265 practicing D.C.s were randomly selected. The first column of Table 5 shows the number of D.C.s sampled in each state.

TABLE 5 - STUDY
SERVICE PROVIDERS SURVEY RESPONSE

State	Sample Size	Number of Responses	Unadjusted Response Rate Percent	Not For-wardable	Percent of of Total	Adjusted Response Rate Percent
Alabama	71	35	49%	5	7%	53%
Alaska	27	13	48%	1	4%	50%
Arizona	76	34	45%	3	4%	47%
Arkansas	61	33	54%	-	-	54%
California	94	45	48%	3	3%	49%
Colorado	76	43	57%	3	4%	59%
Connecticut	56	28	50%	4	7%	54%
Delaware	28	11	39%	-	-	39%
District of Columbia	6	3	50%	-	-	50%
Florida	89	49	55%	2	2%	56%
Georgia	77	43	56%	5	6%	60%
Hawaii	30	18	60%	1	3%	62%
Idaho	47	31	66%	1	2%	67%
Illinois	88	41	47%	4	5%	49%
Indiana	79	41	52%	4	5%	55%
Iowa	85	45	53%	4	5%	56%
Kansas	80	50	63%	3	4%	65%
Kentucky	78	38	49%	5	6%	52%
Louisiana	70	38	54%	3	4%	57%
Maine	40	28	70%	-	-	70%
Maryland	60	27	45%	-	-	45%
Massachusetts	72	43	60%	2	3%	61%
Michigan	87	45	52%	3	3%	54%
Minnesota	81	44	54%	2	2%	56%
Mississippi	66	30	45%	5	8%	49%
Missouri	85	44	52%	1	1%	52%
Montana	50	25	50%	-	-	50%
Nebraska	48	29	60%	-	-	60%
Nevada	43	15	35%	1	2%	36%
New Hampshire	59	28	47%	2	3%	49%
New Jersey	85	33	39%	4	5%	41%
New Mexico	62	28	45%	4	6%	48%
New York	91	31	34%	3	3%	35%
North Carolina	74	32	43%	2	3%	44%
North Dakota	41	28	68%	-	-	68%
Ohio	84	48	57%	2	2%	59%
Okalahoma	76	34	45%	6	8%	49%
Oregon	76	53	70%	5	7%	75%
Pennsylvania	89	47	53%	4	4%	55%
Rhode Island	27	14	52%	-	-	52%
South Carolina	67	25	37%	2	3%	38%
South Dakota	53	29	55%	-	-	55%
Tennessee	60	33	55%	-	-	55%
Texas	88	40	45%	1	1%	46%
Utah	58	29	50%	1	2%	51%
Vermont	37	21	57%	2	8%	60%
Virginia	49	30	61%	2	4%	64%
Washington	84	52	62%	4	5%	65%
West Virginia	39	20	51%	-	-	51%
Wisconsin	82	39	48%	3	4%	49%
Wyoming	34	16	47%	-	-	47%
	3265	1638	51%	12	3%	53%

1977-1979 Study of Education and Manpower in the Chiropractic Profession

Questionnaire Design and Pretest

The Service Provider questionnaires sent to practicing Doctors of Chiropractic were designed to gather data on the five main topics listed above (See paragraphs on purposes of data collection procedures for Doctors of Chiropractic). The questionnaires were reviewed by the Chiropractic Advisory Group, the HEW Review Panel, and Health Resources Administration staff. The survey instruments were pretested with nine practicing Doctors of Chiropractic. Problems regarding respondent conprehension were resolved. Modifications were made in question phrasing and/or response categories. These results and comments improved the survey instrument design. The pretests were also valuable in assessing the likelihood of participation in the study and in judging the magnitude of respondent burden. In both these respects the recent graduate survey appeared very acceptable to the respondent population.

Efforts Made to Secure a High Response Prior and During Mailing/Follow-up Procedures

A great deal of time and energy was devoted to gaining a high response rate and securing cooperation throughout the profession. While more intense efforts were contemplated and even planned, these efforts were in the end considered not to be worth the added cost and time. The final level of effort has been highly successful, as noted above in discussing the recent graduate survey. The steps taken to insure a high response when mailing the questionnaires to service providers, Doctors of Chiropractic in practice over two years, included:

o Sending a locator mailing to everyone on the service provider mailing list announcing the survey and serving to verify individual addresses prior to sample selection.

- Contacting national and state chiropractic associations and requesting that they inform their members and encouraging their participation.
- Informing all chiropractic journals of the study through press releases and articles, encouraging broad participation.
- Mailing initial questionnaire packets to individual doctors with cover letters and instructions. The cover letter and instructions noted that cooperation was voluntary and all responses would be kept confidential with data presented only in summary form.
- Sending three follow-up mailings to non-respondent Doctors of Chiropractic (as done for recent graduates). Two mailings were complete packets of questionnaires, the third was a personal letter from the executive vice president of FACTS (now president of Palmer College of Chiropractic) asking for their cooperation with the study.
- Contacting a small group of non-respondents by telephone to determine why they had not responded and whether they would return the questionnaire. All those contacted were cooperative and indicated a willingness to respond if they received another questionnaire.

Survey Response Rate

The response to this survey (See Table 5) is extraordinarily high for this type of study. Yet, in spite of vigorous and detailed follow-up the response rate fell below our strenuous goal of 75% for the service providers (D.C.s in practice over two years). The overall service provider survey response was 53%, adjusted for not forwardables. Response rates by state ranged from 35% in New York to 75% in Oregon.

The response rate of 53% means that there are not enough returns to perform the state by state comparisons originally planned on a statistically reliable basis. This was presented to the HRA staff and it was decided that we would perform analyses at the national and regional levels where the number of responses is large enough to have statistically reliable conclusions (See Table 6 for regional response rates).

Why the response was not higher, given the extraordinary efforts within the profession to obtain cooperation is worthy of note. It is probably a result of a combination of factors, some of which are listed below:

o The past history of poor relations between the chiropractic porfession and HEW. Several past HEW studies were felt by chiropractors to be severely biased against chiropractic. This made many D.C.s feel the study was only "another intrusion by the federal government into their lives" (to quote one respondent).

o Delays in beginning the survey. The surveys were to be mailed originally in May or June of 1978. OMB clearance was not received until the end of November 1978. By that time the effects of the initial efforts of publicity and creation of interest made early in the study had begun to wain. Also, the time lapse was sufficient to require an extensive updating of the accumulated mailing lists for a first mailing in early

TABLE 6 - STUDY

SERVICE PROVIDER RESPONSE

	TOTAL	NET
NORTH CENTRAL REGIONS	54%	56%
EAST NORTH CENTRAL	51%	53%
ILLINOIS	47	49
INDIANA	52	55
MICHIGAN	52	54
OHIO	57	59
WISCONSIN	48	49
WEST NORTH CENTRAL	57%	58%
IOWA	53	56
KANSAS	63	65
MINNESOTA	54	56
MISSOURI	52	52
NEBRASKA	60	60
NORTH DAKOTA	68	68
SOUTH DAKOTA	55	55
SOUTHERN REGIONS	49%	51%
SOUTH ATLANTIC	49%	50%
DELAWARE	39	39
DISTRICTOF COLUMBIA	50	50
FLORIDA	55	56
GEORGIA	56	60
MARYLAND	45	45
NORTH CAROLINA	43	44
SOUTH CAROLINA	37	38
VIRGINIA	61	64
WEST VIRGINIA	51	51
EAST SOUTH CENTRAL	49%	52%
ALABAMA	49	53
KENTUCKY	49	52
MISSISSIPPI	45	49
TENNESSEE	55	55
WEST SOUTH CENTRAL	49%	51%
ARKANSAS	54	54
LOUISIANA	54	57
OKLAHOMA	45	49
TEXAS	45	46

	TOTAL	NET
NORTHEASTERN REGIONS	49%	51%
NEW ENGLAND	56%	58%
CONNECTICUT	50	54
MAINE	70	70
MASSACHUSETTS	60	61
NEW HAMPSHIRE	47	49
RHODE ISLAND	52	52
VERMONT	57	60
MIDDLE ATLANTIC	42%	44%
NEW JERSEY	39	41
NEW YORK	34	35
PENNSYLVANIA	53	55
WESTERN REGIONS	53%	55%
MOUNTAIN	50%	51%
ARIZONA	45	47
COLORADO	57	59
IDAHO	66	67
MONTANA	50	50
NEVADA	35	36
NEW MEXICO	45	48
UTAH	50	51
WYOMING	47	47
PACIFIC	58%	61%
ALASKA	48	50
CALIFORNIA	48	49
HAWAII	60	62
OREGON	70	75
WASHINGTON	62	65

√

1979.

- o Competing surveys in the field. The study contractors had reached agreement with professional groups that no surveys would be mailed to compete with this major national effort. Confusion and delays caused by the unexpectedly lengthy OMB clearance procedure, noted above, lead to the mailing of other regularly scheduled surveys which competed for respondent time and covered some of the same topic areas.
- o Unfavorable publicity and controversy while surveys were in the field. Unfavorable television programs regarding chiropractic, together with poorly timed public remarks by HEW officials about eliminating chiropractic from all federal reimbursement programs may also have been a factor in our response rate.
- o Budget and time constraints. Suggested efforts to further expand the response rate were not funded, such as a telephone reminder to all non-respondents, a mailing of a complete questionnaire packet, and an expanded non-respondent survey (400 vs. 100).

Non-Respondent Survey Results for Service Providers

A non-respondent telephone survey was conducted of 150 randomly selected service providers.[1] Table 7 shows the results of these contacts. Over 80% of the sample was contacted; only 4% were not listed. Just over 9% did not answer after 6 call-backs to their office telephone listings. This group, we decided was adequate for a comparison of respondents and non-respondents among service providers.

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[1] This number was greater than 100 because we wanted to insure that we could find telephone listings for at least 100 non-respondents to complete the survey.

TABLE 7 - STUDY

NON-RESPONDENT SAMPLE AND RESPONSE RATE FOR SERVICE PROVIDERS

	N[1]	%
NOT LISTED	6	4
COMPLETED CALLS	124	82.7
NO ANSWER	14	9.3
NOT AT LOCATION	3	2
DECEASED OR ILL	3	2
	150	100%

[1] INCLUDED IN COMPLETED CALLS ARE CALLS TO NINE PRACTICING D.C.'S, THREE OF THEM REFUSED TO ANSWER AND SIX WHO WERE GOING TO CALL BACK BUT DID NOT.

Overall, the respondents and non-respondents do not appear to differ significantly for service providers. Table 8 presents a series of comparisons between respondents and non-respondents for selected questions. The main differences appear to be (1) that 18% had graduated from schools no longer operating vs. 10% for respondents, (2) non-respondents work somewhat fewer hours per week, (3) non-repondents have a few more patient visits per week, but not significantly more, (4) non-respondents charge more for a routine examination of an established patient (but data from this question may not be accurate because many respondents added X-ray charges to this amount in the interview and we could not separate these charges from patient visit fees easily for purposes of interpretation. In the original survey these services were categorized separately (See Appendix III, Service Provider Questionnaire, question 28) and the problem did not appear significant).

Presentation of Results and Projections of National and Regional Averages/Other Statistics

In the next several chapters the report writers make projections from the service provider survey responses for regional and national averages. Obviously, when using a probability sampling procedure, one over-samples proportionately in states with small numbers of chiropractors vs. states in which there are more chiropractors. Thus, one must weight the survey responses from each state so that the responses from some "smaller" states do not impact the results of the study more than they should. For example, California has nearly 50 times the number of Doctors of Chiropractic as Alaska; however in this survey sample there were only about 3.5

TABLE 8 - STUDY

Page 1

COMPARISON OF RESPONDENTS AND NON-RESPONDENT FOR SELECTED QUESTIONS

SERVICE PROVIDERS

	RESPONDENTS (UNWEIGHTED) PERCENTAGE	NON-RESPONDENTS PERCENTAGE
SEX OF DC		
MALE	96.4%	94.4%
FEMALE	3.6%	5.6%
	100.0%	100.0%
	N=1631	N=125
PRACTICING OR NOT		
CURRENTLY ACTIVE	88.3%*	87.1%
NOT ACTIVE DC	11.2	10.5
- ACTIVE IN CHIROPRACTIC OR OTHER PROFESSIONAL CAPACITY	2.5	4.0
- ENTERED/ANOTHER PROFESSION	2.0	
- RETIRED/OTHER FAMILY	6.7	6.5
DECEASED/UNABLE TO RESPOND	.5	2.4
	100.0%	100.0%
	N=1663	N=124
COLLEGE FROM WHICH D.C. RECEIVED DEGREE		
CLEVELAND (KC)	3.2	3.6%
CLEVELAND (LA)	1.2	2.7
LIFE	.1	- 0 -
LOGAN	9.4	9.9
LOS ANGELES	3.3	1.8
NATIONAL	19.2	17.1
NEW YORK	4.2	6.3
NORTHWESTERN	3.4	3.6
PALMER	38.3	34.2
PASADENA	- 0 -	.9
SHERMAN	.4	- 0 -
TEXAS	3.5	.9
WESTERN STATES	4.4	.9
ALL OTHERS	10.4	18.1
	101.1%	100.0%
	N-1631	N=111

*ORIGINALLY 91.5% - TOTALS TO MORE THAN 100% BECAUSE 46 RESPONDENTS INDICATED THEY STILL PRACTICED BUT ONLY SPORADICALLY & THUS ANSWERED THAT THEY WERE BOTH ACTIVE & INACTIVE. SEE SUPPLY SECTION FOR FURTHER DETAIL.

TABLE 8 - STUDY (Continued) Page 2

COMPARISON OR RESPONDENTS AND
NON-RESPONDENT FOR SELECTED
QUESTIONS
SERVICE PROVIDERS

	RESPONDENTS (UNWEIGHTED) PRECENTAGE	NON-RESPONDENTS PERCENTAGE
NUMBER OF STATES IN WHICH THE DC CURRENTLY HOLDS A LICENSE TO PRACTICE		
ONE	59.4%	56.9%
MORE THAN ONE	40.6	43.1
	100.0%	100.0%
	N=1628	N=109
NUMBER OF YEARS IN PRACTICE	19 YEARS AVERAGE SD=12.4 SE=.3 N=1494	20.2 YEARS AVERAGE SD=13.5 SE=1.3 N=103
SIZE OF CITY OF TOWN IN WHICH PRIMARY PRACTICE CONDUCTED		
SMALL TOWN	10.4%	6.9%
LARGE TOWN	34.8	37.2
SMALL CITY	26.2	24.5
LARGE CITY	20.3	26.5
SUBURBS	8.3	4.9
	100.0%	100.0%
	N=1499	N-102

TABLE 8 - STUDY (Continued)

COMPARISON OR RESPONDENTS AND NON-RESPONDENT FOR SELECTED QUESTIONS

SERVICE PROVIDERS

	RESPONDENTS (UNWEIGHTED) PRECENTAGE	NON-RESPONDENTS PERCENTAGE
TYPE OF PRACTICE		
PRIVATE	78.1%	79.4
ASSOCIATE/COMMISSION	11.1	9.8
GROUP/PARTNERSHIP	8.5	10.8
OTHER	2.3	- 0 -
	100.0%	100.0%
	N=1499	N=102
SIZE OF GROUP/ PARTNERSHIP	2.5 AVERAGE SD=1.3 SE=.1 N=252	2.7 AVERAGE SD=.9 SE=.2 N=16
NUMBER OF WORK HOURS PER WEEK	44.4 AVERAGE SD=12.5 SE=.3 N=1433	39.4 AVERAGE SD=10 SE=1.1 N=102
NUMBER OF WORK WEEKS PER YEAR	49.0 AVERAGE SD=3.6 SE=.1 N=1492	49.1 AVERAGE SD=5.2 SE=.5 N=101
NUMBER OF PATIENT VISITS PER WEEK	126.97 AVERAGE SD=101.6 SE=2.7 N=1453	132.17 AVERAGE SD=102.5 SE=11.3 N=83
FEE FOR ROUTINE EXAMINATIONS	$14.88 AVERAGE SD=7.88 SE=.2 N=1030	$21.20 AVERAGE SD=13.3 SE=1.5 N=81

times as many selected from California as from Alaska. The weighting procedures are described in more detail in Appendix IV.

SECTION 3

COST OF EDUCATION AND CHARACTERISTICS OF CHIROPRACTIC COLLEGES

This Section presents the results of an extensive study of the cost of education at chiropractic colleges. Efforts were made to follow as closely as practical the methodologies employed in past studies of other health professions which examined cost of education to the schools (not tuition for the students). Descriptive and other information about the colleges is also presented especially regarding factors which may affect the cost of education. The Section contains a summary of major findings, a description of the data sources, a discussion about information analysis and interpretation of the data, and a presentation of survey results.

Summary of Major Findings

The most important findings regarding the cost of chiropractic education and college characteristics are listed below in two areas:

Cost and Character of Doctor of Chiropractic Education

- The average annual net cost of education per student seeking a D.C. degree is $3,310 to the chiropractic colleges. The range is from $2,758 to $4,487.
- The average length of study for students seeking the D.C. degree is 3.5 calendar years (4.0 academic years). This follows completion of two years of post-secondary education. (Students can attend most chiropractic colleges year round and shorten the time to 3 or 3.25 calendar years)

- The average cost of graduating a D.C. for a college is over $12,000. The cost ranges from approximately $8,300 to $16,700. Using past increases in the Consumer Price Index as a crude indicator of increasing cost, one might estimate the average cost of graduating a student entering chiropractic college in 1979 to be about $14,000.

- The cost of education varies less among chiropractic colleges than among other health professional schools studied in the past. The differences which do exist are not apparently associated with institutional characteristics, revenue sources, or faculty activities. Of all spending patterns, only average full-time faculty salaries vary somewhat consistently with annual net cost of education per student.

- State and federal government support is virtually non-existent.

- Colleges use the plant and equipment almost exclusively to train Doctors of Chiropractic.

- There is almost no revenue from professional research (.04% or $15,000 of $30.6 million total income in 10 colleges).

Comparisons Between Chiropractic Colleges and Other Health Professional Training Programs

- Tuition and fees account for 68.2% of income for chiropractic colleges, but average only 9.9% of the total income reported by eight types of health professional education programs studied in 1974 [1] (the range was from 4.0% in medicine to 36.4% in podiatry).

- Unrestricted government grants to chiropractic colleges are projected to be 1.4% of income in 1979 and restricted government support is non-existent. On the other hand, unrestricted government grants averaged 25% of income for the eight types of health professional programs studied in 1974. In addition, these eight types of professional programs received 19.8% of their total income as grants restricted to research from state and federal governments. Thus, government support in these programs averaged nearly 45% of income in 1972 while chiropractic educational programs received only 1.4% from federal and state sources.[1]

- Annual cost of education per student in D.C. degree colleges is less than that for medicine, osteopathy, dentistry, pharmacy, podiatry, veterinary medicine and optometry (when 1972 data on these programs is adjusted for inflation). It is higher than most nursing degree programs.

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[1] Costs of Education in the Health Professions, Institute of Medicine, National Academy of Sciences, Washington DC, January 1974.

Data Sources

Information for this section of the report was drawn primarily from survey responses from a sample of 10 chiropractic colleges. Audited financial statements and projected budgets were also used. (Section 2 contains a detailed discussion of the sample selection and survey processes.)

Comparability with Other Health Professions

The researchers designed this portion of the study so comparisons of results could be made with other health professions, the model employed was the Institute of Medicine (IOM) report, *Costs of Education in the Health Professions*, prepared by the National Academy of Sciences for the Health Resources Administration in 1974. This massive document reported the 1971-1972-1973 costs of education in medicine, osteopathy, dentistry, optometry, pharmacy, podiatry, veterinary medicine and nursing. (The reader should note that in reporting these educational costs for other programs in this report (see page 71) no allowance has been made for inflation. The researchers felt the Consumer Price Index might not accurately reflect the increase in cost of education to the professional schools.)

Costs at Informally Surveyed Schools

In Section 2 the criteria for selecting the sample of ten colleges formally surveyed are more thoroughly discussed. The researchers also gathered cost and other information informally from the other six operating colleges. This data could not be standardized to match that from the formally surveyed schools but the information provided did indicate that those six operating schools not reported upon here have similar gross annual costs to those formally surveyed and reported here. Thus, we believe the conclusions about the cost of chiropractic education can apply generally to the profession.

How the Cost Data is Defined, Interpreted and Analyzed

Data on total unadjusted expenditures were gathered and analyzed for each school. Because chiropractic colleges are generally freestanding, expenditure categories were developed with relative ease, compared to university-based health professional facilities. The Council on Chiropractic Education (CCE) has suggested standard cost classifications but these are not fully implemented at the colleges. The classifications are similar to those discussed in the 1971 Association of American Medical Colleges, Guidelines for Academic Health Center Cost Allocation Studies. Nevertheless budget components at 10 chiropractic schools exhibited considerable similarity and were used to develop questionnaire line items. Expenditure categories used in the formal survey (administration, direct instruction, library, capital spending, auxiliary enterprise and clinic) were further refined by a pre-test survey.

"Adjusting" Unadjusted Educational Expenditures

Some modifications were necessary to accurately portray costs. Total unadjusted expenditures were increased by the amount of imputed costs -- these would become cash items if the goods or services were not donated to the colleges. Total unadjusted expenditures are also reduced by non-D.C. instruction costs. The figure resulting from these two adjustments is the annual cost of Doctor of Chiropractic education.

Net Cost of Education

The colleges perform revenue generating services which should be examined. The "net cost" of education recognizes income generated by activities related to education and expenditures included in the cost of education. Thus as in the IOM study, annual cost of education is reduced by revenues from research, the college clinic, and auxiliary enterprises (i.e., bookstore, cafeteria, parking lots) to determine annual net cost of D.C. education.

Factors Leading to Potential Variation in Costs

Several factors leading to potential variation in cost of education were examined. Student-teacher ratios were recognized as a possible explanation for inter-school cost variation. Standard definitions of full-time equivalent (FTE) student and faculty were necessary to compute a comparable and consistent ratio. The schools themselves defined full-time students and converted part-time students to FTEs. Student population was defined as of a single common measurement date. For faculty, each school defined part-time employment as a percent of full-time duties, allowing FTE conversion by calculation.

The annual cost data in this section are thus presented by:

- Unadjusted expenditures and net cost of education methods (described.above) used in the IOM study
- Total dollar amount spent on D.C. education by respondent colleges
- Percentage breakdowns by expenditure categories
- Per student costs for aggregate and categorical costs
- Ranges of costs among responding colleges

Presentation of Survey Results and Analysis

Survey results and analysis are presented in three divisions. First, the characteristics of the programs are discussed, such as location, ownership, accreditation status, labor markets served, degrees or certificates offered, size of school and faculty size and duties. Second, we analyze the cost of education using school responses from their audited 1977-1978 school year budgets and the projected 1978-1979 budgets. The analysis describes aggregate costs, cost components, revenue sources, net costs, and cost variation. Third, comparisons with other health professions are discussed. (A discussion of educational requirements of the colleges appears in Appendix II of Volume II. Variations in educational requirements do not seem to affect cost of education and are thus not presented here.)

Characteristics of Chiropractic Colleges and Location of Student Population

The 13 chiropractic colleges operating during 1977-1978 when the study began are listed in Table 9. The geographic distribution of these schools by major census regions is 8% (1 school) Northeast; 38% (5 schools) North Central; 31% (4 schools) West; and 23% (3 schools) South. These institutions are all urban, located within the boundaries of a Standard Metropolitan Statistical Area. In addition, three new colleges are being organized -- two in California and one in Pennsylvania.[1]

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[1] All three of these colleges began operation during the course of the project. Two are in urban areas of California in the Western Region, and one in Pennsylvania in the Northeastern Region. Neither expects to graduate a class of D.C.s until 1981.

TABLE 9 - COST OF EDUCATION

CHIROPRACTIC COLLEGES IN OPERATION IN 1973-1974

CLEVELAND CHIROPRACTIC COLLEGE	Kansas City, Missouri
CLEVELAND CHIROPRACTIC COLLEGE	Los Angeles, California
LIFE CHIROPRACTIC COLLEGE	Marietta, Georgia
LOGAN COLLEGE OF CHIROPRACTIC	Chesterfield, Missouri
LOS ANGELES COLLEGE OF CHIROPRACTIC	Glendale, California
NATIONAL COLLEGE OF CHIROPRACTIC	Lombard, Illinois
NEW YORK COLLEGE OF CHIROPRACTIC	Old Brookville, New York
NORTHWESTERN COLLEGE OF CHIROPRACTIC	St. Paul, Minnesota
PALMER COLLEGE OF CHIROPRACTIC	Davenport, Iowa
PASADENA COLLEGE OF CHIROPRACTIC	Pasadena, California
SHERMAN COLLEGE OF STRAIGHT CHIROPRACTIC . .	Spartanburg, South Carolina
TEXAS CHIROPRATIC COLLEGE	Pasadena, Texas
WESTERN STATES CHIROPRATIC COLLEGE	Portland, Oregon
*NORTHERN CALIFORNIA COLLEGE OF CHIROPRACTIC	Sunnyvale, California
*PACIFIC STATES CHIROPRACTIC COLLEGE	San Lorenzo, California
*ADIO COLLEGE OF CHIROPRACTIC	Levittown, Pennsylvania

NOTE: Cities are campus locations
*New colleges in operation but have not graduated a class of D.C.s

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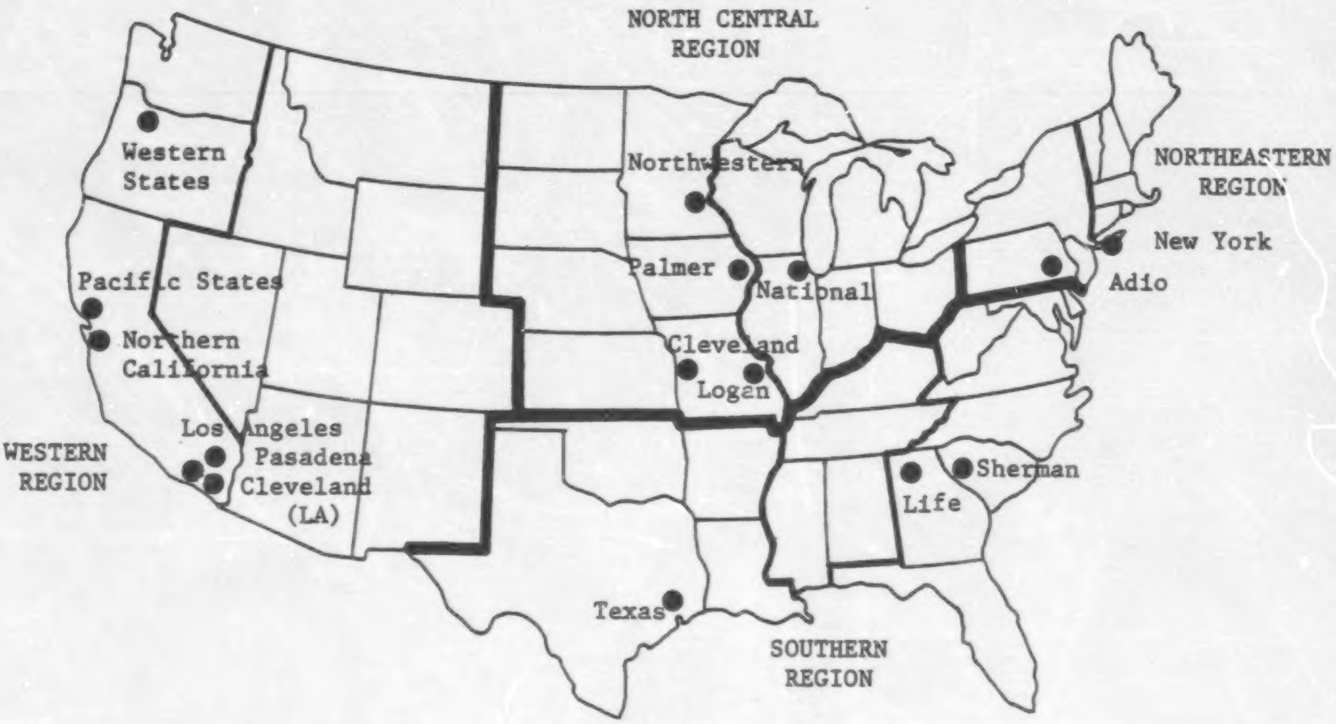
LOCATION OF CHIROPRACTIC COLLEGES


NORTH CENTRAL REGION
NORTHEASTERN REGION
WESTERN REGION
SOUTHERN REGION
Western States
Pacific States
Northern California
Los Angeles
Pasadena
Cleveland (LA)
Northwestern
Palmer
National
Cleveland
Logan
New York
Adio
Sherman
Life
Texas

Ownership and Status of the Colleges	Many currently existing schools previously had been proprietary profit-seeking enterprises. All schools now however, are private non-profit institutions without any direct government grant supports. In addition chiropractic colleges are generally freestanding; only one school shares facilities with other university programs. However, at least two other schools contract with community colleges for basic sciences or elective subjects.
Accreditation Status	The ten respondent schools have attained varying levels of CCE accreditation. This accreditation process has coincided with upgrading of educational requirements and curriculum offerings, and substantial new educational expenditures.
Labor Market	The labor market orientation of D.C. college respondents is primarily a college's state or region, but 80% of the colleges claimed to educate and place practicing D.C.s nationally. Table 10 indicates the average school enrolls one-third of its students from within the state where the school is located; nearly half of the students are from the nation as a whole. Table 10 shows that 34% of 1977-1978 graduates of seven respondent schools were placed within the state and another 26% in the region surrounding the colleges. Four percent were foreign placed, and 5% were not practicing chiropratic.

TABLE 10 - COST OF EDUCATION
D.C. COLLEGE GEOGRAPHIC MARKET ORIENTATION

AREA	AVERAGE COLLEGE D.C. ENROLLMENTS PERCENTAGE OF ENTERING CLASS (N=10)
STATE	34%
REGION	16
NATION	45
FOREIGN	5
TOTAL	100%

AREA	AVERAGE INITIAL PLACEMENT PERCENTAGE OF 1977-1978 GRADUATES* (N=7)	
STATE	34%	3 UNABLE TO ESTIMATE
REGION	26	
NATION	31	
FOREIGN	4	
NON-D.C.	5	
TOTAL	100%	

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Degrees and Certificates Offered

Chiropractic schools are primarily concerned with D.C. education -- first degree students in the IOM terminology. But all respondent colleges award degrees and certificates other than the D.C. Degree. Three schools award a B.S. in biology. Four schools have chiropractic assistant programs. Sixty percent of the respondents award postgraduate certificates: 5 in roentgenology, 4 in orthopedics, 2 in nutrition, and 1 each in meridian therapy, adjunctive therapy, sports injuries, physio-therapy, and accupuncture. Two schools award internship certificates -- either roentgenology or physiotherapy. One school each also awards certificates in phlebotomy, laboratory technology, X-ray and clinical instruction.

Number of Non-D.C. and Full-Time D.C. Students in College Programs

In terms of numbers of students, eight schools estimated (data not available for one respondent) a total of 944 postgraduate and chiropractic assistant students (some of whom appear to be jointly seeking a D.C. degree). Thus, non-D.C. candidates are 14% over and above the total number of full-time equivalent D.C. students at these schools. Part-time students are estimated to number 77, less than 2% of the total FTE D.C. enrollment. In 1977-1978 total enrollment at the 10 respondent colleges was 6,335; programs ranged in size from 228 to 1,835 students. For 1978-1979, total number of students at respondent colleges was 6,828; these programs varied from 231 to 1,823 students. (Nationally, the approximate D.C. student enrollment at 15 colleges was 7,900 in 1978. See Table 33 in Section 5) Projected 1979-1980 enrollments total 7,422 and range from 238 to 1,800. These data show a growth of 9% per annum in D.C. enrollments among respondent colleges from 1977 to 1980.

Full-time student definitions vary significantly, despite the CCE version of 15 credit hours per semester. Definitions involve hours per week or term of instruction, number of semester credits and/or the number of classes per day. Each respondent used its own classification scheme to determine full-time equivalent students as of October 15 each year. (See Appendix at the end of this Section for a discussion on propriety of student enrollment measurement.)

Enrollment Capacity of the Colleges

Half (five) of the respondent colleges report capacity enrollment. Among the other five, three respondents estimate current enrollment below capacity -- a total of 550 students (less than 7% of total enrollment). The reasons cited to explain this excess capacity were recent CCE accreditation, campus acquisition, school newness, and lack of faculty salary funds. And two schools report enrollments above capacity, due primarily to classroom facility shortage.

Average Survival Rate of D.C. Students in a Class

When comparing students entering D.C. programs over the past five years to graduates, one finds that the average ratio of graduates in a class to the initial class's enrollment has varied from 73% to 90% at individual programs. Over all schools the weighted average survival rate is 81% of students initially enrolled.

Faculty Size

Faculty at the nine schools responding to this part of the survey totalled 590. Programs vary from 28 to 115 members. On the average, 64% (377) of the faculty were full-time college employees. This figure ranged from 35% to 91% by institution. FTE faculty totalled 476 and ranged from 22 to 110, based on each respondent's definition of faculty duties as a percentage of full time. Despite substantial variety in "full-time" definitions, most involved between 9 and 15 hours/credits and various other duties totalling between 26 and 40 hours per week on the campus. Total work hours per week, including off-campus preparation, averaged 42 hours.

Use of Part Time Faculty

Part-time faculty were widely used: Of 336 chiropractic and clinical science faculty, 41% (138) were part time; of 148 basic science faculty 34% (50) were part time; and of 106 administrators 24% (25) were part time.

Faculty Activities

The activity distribution of full-time faculty in administration and basic and clinical sciences is displayed in Table 11. There are substantial activity allotment differences between colleges and types of faculty as seen in Table 11. Data on the acitivites of the average faculty member (based on numbers of FTE faculty in each field) at each school is shown in Table 12.

Faculty: Student Ratios

The ratio of FTE faculty/FTE D.C. students averaged 1:13 and ranged from 1:9 to 1:24 during 1977-1978. (See Appendix for a comparison of this ratio and that employed in the IOM study.) Total part and full-time faculty/FTE D.C. student ratios averaged 1:10 and ranged from 1:6 to 1:19. Full-time faculty/FTE student ratios ranged from 1:13 to 1:23 and averaged 1:16.

TABLE 11 - COST OF EDUCATION

DISTRIBUTION OF FACULTY GROUP TIME BY ACTIVITIES/PROGRAMS IN SAMPLED SCHOOLS 1978-1979

N=9

ACTIVITY	AVERAGE HOURS	AVERAGE PERCENT OF TIME
BASIC SCIENCE FACULTY		
DIRECT CONTACT/TEACHING	20.0	47.6%
PREPARATION	11.0	26.2%
RESEARCH	2.6	6.1%
ADMINSTRATION	3.0	7.2%
PRIVATE PRACTICE	0.3	0.7%
PUBLIC SERVICE	1.3	3.2%
PROFESSIONAL DEVELOPMENT	3.0	7.2%
OTHER	0.8	1.8%
TOTAL	42.0	100.0%
CHIROPRACTIC AND CLINICAL SCIENCE		
DIRECT CONTACT/TEACHING	20.0	48.0%
PREPARATION	7.7	18.4%
RESEARCH	2.2	5.2%
ADMINSTRATION	3.2	7.6%
PRIVATE PRACTICE	3.4	8.1%
PUBLIC SERVICE	2.2	5.2%
PERSONNEL DEVELOPMENT	2.6	6.1%
OTHER	0.5	1.3%
TOTAL	42.0	100.00%
ADMINSTRATIVE FACULTY		
DIRECT CONTACT/TEACHING	7.4	17.6%
PREPARATION	2.2	5.3%
RESEARCH	1.0	2.4%
ADMINSTRATION	26.6	63.3%
PRIVATE PRACTICE	0.3	0.7%
PUBLIC SERVICE	2.3	5.4%
PROFESSIONAL DEVELOPMENT	2.1	4.9%
OTHER	0.1	0.3%
TOTAL	42.0	100.0%

TOTALS MAY NOT ADD DUE TO ROUNDING.

TABLE 12 - COST OF EDUCATION

ACTIVITY DISTRIBUTION FOR AN AVERAGE D.C. COLLEGE FACULTY MEMBER

ACTIVITY	AVERAGE HOURS	PERCENT TIME
DIRECT CONTACT/TEACHING	17.6	41.8%
PREPARATION	7.5	17.8%
RESEARCH	2.1	4.9%
ADMINSTRATION	7.8	18.6%
PRIVATE PRACTICE	2.0	4.8%
PUBLIC SERVICE	2.0	4.7%
PROFESSIONAL DEVELOPMENT	2.6	6.1%
OTHER	6.5	1.2%
TOTAL *	42.0	100.0%

(N=9)

* TOTALS MAY NOT ADD EVENLY DUE TO ROUNDING

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Faculty Tenure and Salaries

Six respondents had no faculty tenure system, using multi-year renewal contracts. Most of these schools use a rank system for full-time employees. One school reported it had not been in operation long enough with its tenure policy to have tenured faculty.

The average full-time faculty salary at each school does appear to vary substantially, from $13,960 to $21,309 for a composite administrative/clinical/basic science faculty member (based on data for 9 colleges). (There are apparently no significant imputed cost adjustments to faculty salaries, which would require adjustment of these amounts, even though many D.C. educators believe that these salaries are too low to attract highly qualified D.C.s to a teaching career.)

Volunteer faculty are not numerous in chiropractic education. Only two schools report time donors: 6 clinic hours per week at one school and 10 hours per week in archives at another school.

Faculty Education Levels

Education levels of faculty members (presented in Table 13) differ considerably between schools. The "other" category in Table 13 is composed of 3 medical doctors, 1 dentist, 1 osteopath, 2 nurses, 2 medical technicians, 1 emergency medical technician, and 1 veterinarian. Degreed faculty to total faculty varied between 85% and 100% at the programs surveyed (degree is defined here generally as the baccalaureate level or higher).

TABLE 13 - COST OF EDUCATION

DISTRIBUTION OF HIGHEST EDUCATION LEVEL ATTAINED BY DEGREED FACULTY AT RESPONDENT SCHOOLS

DEGREE	DEGREED FACULTY	PERCENT	NO. OF DEGREED FACULTY RANGE LOW	HIGH
D.C. ONLY	175	32%	3	44
D.C. AND PH.D./J.D	3	1	0	2
PH.D./J.D.	79	14	2	17
D.C. AND M.A./M.S.	35	6	1	12
M.A./M.S.	71	13	2	19
D.C. AND B.A./B.S	162	29	7	31
B.A./B.S.	19	3	0	8
OTHER	11	2	0	3
TOTAL	555	100		

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Cost of Chiropractic Education: 1977-1978 and 1978-1979

Costs of chiropractic education are described along several lines leading to an average annual net cost of education per student. A total of over $28.5 million is expected to be spent in 1978-1979 by all 10 schools. This will be analyzed and then we will discuss (1) how net costs are derived given that revenue is generated by college services, and (2) what variation there is in this average annual cost per student.

Unajdusted Total College Expenditures

Aggregate dollar costs of the respondent schools are presented in Table 14. Total unadjusted expenditures are total school budgets. Cost components segregated in Table 5 are general administration, direct D.C. instruction, clinic, non-D.C. instruction, student services, library, plant operation and maintenance, other general/indirect, and capital outlay. Unajusted costs for the colleges total approximately $24,565,649 and $28,586,323 in fiscal years 1977-1978 and 1978-1979 respectively.

Adjusting Total Costs

The cost of education is then calculated by adjusting total expenditures for imputed income and non-D.C. instruction costs. Only one school reported substantial amounts of imputed income; this is less than 1/10% of the aggregate costs of education. Non-D.C. instruction costs (as reported by each college) aggregated less than 1% of the cost of D.C. education (Some schools, however, reported zero non-D.C. instruction costs, although they reported offering non-D.C. degree programs.) In addition a capital outlay adjustment was theoretically desirable, but data problems precluded such a modification of cost of education (See Appendix D at back of Section).

TABLE 14 - COSTS OF EDUCATION

COSTS OF CHIROPRACTIC EDUCATION BASED ON DATA OF 10 RESPONDENT SCHOOLS

		1977-1978			1978-1979	
	TOTAL DOLLARS	PERCENT OF ADJUSTED TOTAL EXPENDITURE	DOLLARS PER STUDENT	TOTAL DOLLARS	PERCENT OF ADJUSTED TOTAL EXPENDITURE	DOLLARS PER STUDENT
GENERAL ADMINISTRATION	3,783,294	15.5	597	3,865,701	13.6	566
DIRECT D.C. INSTRUCTION COSTS - TOTAL	7,570,833	31.0	1195	9,849,119	34.6	1442
Faculty Salary	4,436,645	18.1	700	5,937,729	20.9	870
Other Faculty Costs	1,085,376	4.4	171	1,215,037	4.3	178
Non-Faculty Wages	1,554,182	6.4	245	1,934,435	6.8	283
Materials	164,668	0.7	26	323,287	1.1	47
Other Direct Costs	329,962	1.3	52	438,631	1.5	64
CLINIC COSTS - TOTAL	2,434,428	10.0	384	2,768,245	9.7	405
Faculty Salary	917,607	3.8	145	994,696	3.5	146
Other Faculty Costs	235,177	1.0	37	241,352	0.8	35
Non-Faculty Wages	473,234	1.9	75	580,160	2.0	85
Materials	298,298	1.2	47	375,366	1.3	55
Other Costs	510,112	2.1	81	576,671	2.0	84
NON-D.C. INSTRUCTION COSTS	126,641	0.5	20	153,049	0.5	22
STUDENT SERVICES	849,581	3.5	134	859,393	3.0	126
LIBRARY	586,017	2.4	93	768,103	2.7	112
PLANT OPERATION & MAINTENANCE	2,330,504	9.5	368	3,188,850	11.2	467
OTHER INDIRECT/GENERAL ITMES	1,133,731	4.6	179	1,590,600	5.6	233
CAPITAL OUTLAY	3,492,508	14.3	551	3,201,189	11.3	469
AUXILIARY ENTERPRISES	2,258,112	9.2	356	2,342,074	8.2	343
TOTAL UNADJUSTED EXPENDITURES	24,565,649	100.5	3878	28,586,323	100.5	4187
- NON-D.C. INSTRUCTION COSTS	-126,641	-.5	-20	-153,049	-.5	-22
+ IMPUTED IMCOME	+ 12,000	+ *	+ 2	+ 12,000	+ *	+ 2
TOTAL ADJUSTED COST OF EDUCATION	24,451,008	100.0	3860	28,445,274	100.0	4166
- CLINIC REVENUES	-2,202,569	- 9.0	-348	-2,880,155	-10.1	-422
- RESEARCH REVENUE	- 18,000	- 0.1	- 3	- 15,000	- 0.1	- 2
- AUXILIARY ENTERPRISE REV.	-2,680,453	-11.0	-423	-2,946,614	-10.4	-432
NET COST OF EDUCATION	$19,549,986	80.0%	$3086	$22,603,505	79.5%	$3310

(Totals may not add due to rounding)
*=0.1%

No Adjustments in Total Cost Needed for Clinics, Research, Ancillary Enterprises, or Administration

Clinic are owned and operated principally to educate students. No school reported any clinic activities or services in which students were not allowed to participate. Therefore, clinic activity is regarded as a joint instructional activity 100% beneficial to students, and all clinic costs are considered instructional (See also Appendix C at the end of this Section for discussion of clinic revenues). In fact, as one can see from Table 14 college clinics lose money on balance.

Although research cost is not a separate line item among the costs in Table 14, all research conducted by chiropractic colleges is essential to teaching activity (and a very minor portion of all school activities). Therefore, research expenditures are also part of the cost of education.

Auxiliary enterprises are operated for educational purposes; these costs are included in aggregate costs of education.

No allocation of general administration and support costs was required, because all D.C. college activities are relevant to education, and the population of non-D.C. students is not significant.

Resultant Cost of Education

After analyzing all these possible adjustments to parallel the IOM study we arrived at a cost of education figure for the ten colleges. This total cost of education at respondent schools was $24,451,008 and $28,445,274 in 1977-1978 and 1978-1979, respectively.

There are six major components of the cost of education. The largest component cost in both 1977-1978 and 1978-1979 was direct instruction -- 31% and 35%. The proportions of the cost of education in the six major components are summarized below from Table 14.

Component	1977-1978	1978-1979
Direct instruction	31%	35%
Faculty salaries and benefits*	22%	26%
Plant operation, maintenance and capital outlay	24%	22%
General administration	16%	14%
Clinics	10%	10%
Auxiliary enterprises	9%	8%

*Faculty salaries are also included in direct instruction costs.

It should be noted that considerable differences exist between school allocation plans. Over half of the line items have 0 as the minimum of the sample college's range.

Revenue Sources

Sources of chiropractic college income are displayed in the aggregate for the sample in Table 15. D.C. tuition and fees is the largest (68%) single component of revenue. Auxiliary enterprises generate 10%. Clinic revenues are 9% of total funding. Other revenues from various sources account for the remainder. The chiropractic schools receive very little governmental support (except perhaps for student aid, such as V.A. or

TABLE 15 - COST OF EDUCATION

CHIROPRACTIC COLLEGE SOURCES OF INCOME

	AUDITED 1977-1978 AMOUNT	AUDITED 1977-1978 PERCENT	PROJECTED 1978-1979 AMOUNT	PROJECTED 1978-1979 PERCENT
TUITION				
DC DEGREE*	17,646,185	68.5%	20,921,871	68.3%
OTHER PROGRAMS	711,960	2.8	962,080	3.1
FEES				
D.C. DEGREE	491,938	1.9	490,750	1.6
OTHER PROGRAMS	89,364	0.3	100,000	0.3
GOVERNMENT SERVICES				
STATE	22,314	0.1	387,067	1.3
FEDERAL	25,032	0.1	24,368	0.1
ENDOWMENTS AND GIFTS	1,312,171	5.1	1,286,769	4.2
RESEARCH	18,000	0.1	15,000	0.1
CLINIC	2,202,569	8.6	2,880,155	9.4
AUXILIARY ENTERPRISES				
BOOKSTORES	2,146,105	8.3	2,326,145	7.6
CAFETERIA	116,584	0.5	135,100	0.4
OTHER	417,764	1.6	485,369	1.6
OTHER INCOME	544,715	2.1	618,202	2.0
TOTAL INCOME	25,744,701	100.0	30,632,876	100.0

N=9

*INCLUDES SOME D.C. FEES

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student loan programs, available to students in all professional schools, but these programs were not analyzed for this report).

Net Cost of Education

The net cost of eduction is determined by subtracting offsetting revenue generated by costs allocated to services essential (included) in education. The net cost of education appears to be 80% of the cost of education. The dollar amount of net cost of education was $19,549,986 in 1977-1978 and $22,603,505 in 1978-1979 (See Table 14). Since 100% of research, clinic, and auxiliary enterprise costs are included in the cost of education, 100% of the income attributed to these sources is deducted from the cost of education. This process imbeds any surplus or deficit of the activities in the net cost of education. The true "profit" impact of these activities at the various schools is difficult to assess, due to problems of consistency in cost allocation. For instance, according to one school's budget, general administration costs are not charged to auxiliary enterprise activities. The income from these activities as a percent of education costs were: 9-10% for clinic, less than 1% for research, and 10-11% for auxiliary enterprises.

Average Annual Net Cost of Education per D.C. Student

The total net cost of D.C. education is divided by the number of FTE D.C. students to obtain average annual net education costs. Tables 16A and 16B show the distribution of net education costs and selected line items among selected schools (high, median, low and average). During 1977-1978, the average net cost of education was $3,068 and ranged from a low of $2,494 to a high of

TABLE 16A - COST OF EDUCATION

DISTRIBUTION BY SCHOOL OF SELECTED COMPONENTS OF ANNUAL EDUCATION COST PER STUDENT 1977-1978 AUDITED

	HIGH	MEDIAN	LOW	MEAN
GENERAL ADMINISTATION COST	969	560	204	632
DIRECT COSTS OF D.C. INSTRUCTION	1903	1219	681	1226
INSTRUCTIONAL PLUS OTHER SALARY AND BENEFITS	1290	915	581	949
CLINIC COSTS	867	474	300	537
LIBRARY COSTS	171	91	27	94
PLANT OPERATION AND MAINTENANCE	532	281	152	327
CAPITAL OUTLAY	1163	337	41	434
AUXILIARY ENTERPRISE COSTS	564	350	7	327
TOTAL EXPENDITURES - UNADJUSTED	5176	3431	2956	3664
COST OF EDUCATION	5176	3416	2956	3653
NET COST OF EDUCATION	3707	2906	2494	2909

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TABLE 16B - COST OF EDUCATION

DISTRIBUTION BY SCHOOL OF SELECTED COMPONENTS OF ANNUAL EDUCATION COST PER STUDENT
1978-1979 PROJECTED

	HIGH	MEDIAN	LOW	MEAN
GENERAL ADMINISTRATION COST	1060	571	284	621
DIRECT COSTS OF D.C. EDUCATION	2014	1357	688	1423
INSTRUCTION PLUS OTHER SALARY AND BENEFITS	1602	1044	598	1102
CLINIC COSTS	831	510	344	561
LIBRARY COSTS	219	123	19	114
PLANT OPERATION AND MAINTENANCE	724	404	133	401
CAPITAL OUTLAY	1658	274	79	460
AUXILIARY ENTERPRISE COSTS	575	397	0	331
TOTAL EXPENDITURES - UNADJUSTED	6051	4016	3135	4074
COST OF EDUCATION	6051	4016	3135	4107
NET COST OF EDUCATION	4487	3124	2758	3267

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$3,707. During 1978-1979, the average net annual cost of education per student was $3,310; the minimum cost was $2,758 and the maximum was $4,487. The implicit inflation rate (increase in cost per student) over the one year interval is 7.3%. Using this average annual net cost per student, we will examine variation in cost and make brief comparisons with other health professional programs.

Cost Variation Among D.C. Educational Programs

The only variable seemingly related to extreme costs is average full-time faculty salaries. The sample was split into groups based on the three highest and lowest annual cost schools. No other clear pattern readily emerges from analysis.

Total cost differences were not explained by the following cost per student spending patterns: direct instruction, clinic (and net clinic deficit/surplus), fixed assets (library, plant, and/or capital items), auxiliary enterprise (and net contribution or deficit), and salaries and fringes. Basic faculty characteristics (faculty-student ratios, activity time allotments, percentages full/part time faculty, academic degrees) do not seem to follow cost variations. Average full-time faculty salaries (which were available for only 8 respondents) weakly form a pattern, with high (low) average salaries loosely associated with high (low) net costs of education.

Revenue sources, including the percent of endowments and gifts (which range from 1-8%) contribute nothing to an explanation. Neither does the number of clinics operated nor the distribution of restricted and unrestricted income seem explanatory.

The program characteristics of size, capacity and length also bore no relation to cost patterns.

Net Cost
Per Graduate

In order to determine the true net cost to train an individual D.C., the costs of educating students who do not graduate must be considered. Annual net cost per student at each school is (1) multiplied by the number of years it takes for the average student to complete each school's program, and (2) divided by the survival ratio of graduates to initial enrollment and (3) weighted by the number of students at each college versus the total number of D.C. students. The average length of study for the D.C. degree over the respondent schools is three and one-half calendar years (42 months), and ranges from 36 months to 44 months. Using for this calculation an 81% average annual survival rate, the average cost of graduating a D.C. then becomes $12,382. Using individual school survival rates, costs, and program lengths , the cost of graduating a chiropractor ranged in 1977-1978 from $8,313 to $16,670. Adjusting for inflation (a crude estimate from the CPI) this cost could reach $14,000-$15,000 for a student entering now (1979) and completing a program in 3 to 4 years.

Comparison of Chiropractic Education Costs vs. Other Health Professional Education

The source of comparative data on other health professionals is the 1972-1973 IOM study. Comparisons in Table 9 are not adjusted for inflation since that time, biasing the cost of D.C. education toward the high side. The average cost of D.C. education in 1977-1978 in the 10 colleges was lower than annual costs reported five years earlier for medicine, osteopathy, dentistry, podiatry, veterinary medicine and optometry. These finds are based on comparisons from the IOM study. The cost of annual average D.C. education is higher than pharmacy ($3,550) and the nursing degree programs -- baccalaureate, diploma, and associate.[1] Comparisons in terms of net annual education costs (in column 4 of Table 17) show nearly identical rankings.[2] Adjusting crudely for 7% inflation since 1972-1973, all programs but the nursing degrees would have higher costs.

The variation in annual costs of education (measured in terms of the range - maximum less minimum - divided by the average) is less for D.C.s than all professions but optometry and podiatry. In terms of net education expenditures, D.C. costs are less variable than all but osteopathy and optometry. Two major areas of difference between chiropractic and other health professional programs are: (1) Tuition as a portion of revenue is much higher in chiropractic colleges, 68.2% versus 9.9% in the eight health professional groups studied in 1972; (2) Government support, state and federal, as a portion of revenues for chiropractic is far lower than for the other professional schools, 1.4% versus nearly 45%.[3]

[1] IOM study, Parts I and II and page 33

[2] IBID, page 42

[3] IBID, page 16

TABLE 17 - COST OF EDUCATION

AVERAGE ANNUAL EDUCATION COSTS, OFFSETTING RESEARCH AND PATIENT CARE REVENUES, AND NET EDUCATION EXPENDITURES, PER STUDENT BY PROFESSION[1]

	EDUCATION COSTS	OFFSETTING RESEARCH REVENUES	OFFSETTING PATIENT CARE REVENUES	NET EDUCATION EXPENDITURES
CHIROPRACTIC	$4,200[2]	$ 0	$ 400	$3,300[4]
MEDICINE	13,100[3]	2,100	1,300	9,700
OSTEOPATHY	8,950	100	1,850	7,000
DENTISTRY	9,050	700	950	7,400
OPTOMETRY	4,250	50	1,050	3,100[4]
PHARMACY	3,550	450	50	3,050
PODIATRY	5,750	0	800	4,900[4]
VETERINARY MEDICINE	7,500	600	1,350	5,550
NURSING				
BACCALAUREATE	2,500	50	0	2,450
ASSOCIATE	1,650	0	0	1,650
DIPLOMA	3,300	0	1,800[5]	1,500

NOTE: Figures are rounded to the nearest $50.

[1] Data on chiropractic is from 1978-1979 Projected College Budgets. Data on other professional colleges is for 1972-1973 from Institute of Medicine Study. The latter data set has not been adjusted for inflation because of uncertainty regarding the proper rate of inflation in health education costs. It was felt that the Consumer Price Index may not accurately reflect the impact of inflation in these costs.

[2] Includes $450 derived from auxiliary enterprises, which is subtracted to achieve net education expenditures.

[3] The average education cost of $13,100 differs from the $12,650 quoted elsewhere because one school is excluded from the $13,100 calculation for lack of income data.

[4] Totals do not equal sum of components due to rounding.

[5] Cost reimbursement by third party payers to parent hospitals.

APPENDIX

The following appendices are added to this section to clarify the steps used to develop the net cost of education estimates for chiropractic colleges. They are provided here for readers who may want to reference comparisons with the Institute of Medicine study. All other appendices appear in Volume II.

Appendix A

Student Enrollment and Appropriate Measurement Date

October 15 is the date used by DHEW for reporting and montioring enrollments. Therefore data as of October 15 has been compiled for purposes other than this survey and is readily available.

Unlike many other health professional schools, 80% of the respondents offer year-round coursework, including extensive summer sessions. A single Fall measurement date would not be representative if there were substantial variation in enrollment during the year. A number of class scheduling options are in use, including the semester, trimester and quarter. In at least one school, term length depends on degree of program completion. In addition to considerable variation in the number of admittance dates per year, there are differences in the number of graduations per year among the chiropractic colleges.

Enrollment figures by every term within both years were not complete for each college. However, average annual enrollment was determinable for all institutions for at least one year. The change in enrollment between the annual average and the single measurement date varied by 1 to 20%. Only two schools showed variations greater than 10%; these were in opposite directions and cancel each other out in the overall averages. Schools with the maximum deviations were not the largest in the sample. Any bias introduced by a single measurement date is likely to be small relative to student counts. No cost pattern was discovered to relate to school population size as measured.

Appendix B

Instructional Faculty-Student Ratio

The IOM study defined faculty-student ratio was:

$$\frac{\text{number of FTE faculty X \% time in instruction}}{\text{number of first degree students}}$$

If the percent of time in instruction is presumed to be 100, FTE faculty/FTE D.C. student is identical to the IOM faculty student-definition. "Instructional activity" contributes solely to educational programs, and includes direct teaching activities, a portion of joint instruction and research/patient care, and a portion of general support activities.[1] Because all research, patient care and auxiliary enterprises are conducted totally for the purpose of instruction, there is no necessity of allocating any general administration costs to these activities.

[1] IOM study, Part III, page 3.

Appendix C

Clinic Revenue

When questioned about clinic revenues unrelated to education, half of the sample replied that a portion (ranging from 2% to 33%) related to service to the profession. This data is based on 9 respondent schools which returned the survey booklet dealing with clinics. On average (weighted by clinic revenue dollar amounts), 9% of aggregate clinic revenue was regarded as professionally related. This is less than 1/10% of the total cost of education.

Appendix D

Capital Outlay Adjustment

The IOM study adjusted for inter-institutional differences in accounting policies by using a standard depreciation charge of 2-5% of fixed asset historical cost. Historical cost is not readily available or relevant at many chiorpractic colleges (due to their ability to purchase multi-purpose facilities and the current availability of such campuses are far less than replacement cost). Instead of a depreciation estimate, the dollar amount of capital expenditures was requested. Outlays were to be adjusted to reflect seven to forty year lives, depending on the type of asset involved, and whether or not the expenditures were continuing or temporary (due to one-time accreditation needs).

The data (See Tables 18 and 19) collected from sample schools is not supportive of any obvious consistent adjustment or standard approach to long term asset costs. The treatment of capital improvement, replacements, and depreciation costs may be a factor causing variation in education costs among colleges.

TABLE 18 - COST OF EDUCATION

AGGREGATE DISTRIBUTION OF HISTORIC 5-YEAR AVERAGE CAPITAL EXPENDITURE

CATEGORY	PERCENT[A]	PERCENT[B]
NEW BUILDING/ADDITIONS	38	50
REMODELING	21	18
OFFICE/LABORATORY EQUIPMENT	34	19
LIBRARY AND PARKING LOTS	3	1
LAND AND IMPROVEMENTS	3	12
MISCELLANEOUS	1	1

TOTAL MAY NOT ADD TO 100 DUE TO ROUNDING.

[A] UNWEIGHTED COLLEGE AVERAGE

[B] AVERAGE WEIGHTED BY DOLLAR VALUE OF COLLEGE OUTLAY.

N=9

TABLE 19 - COST OF EDUCATION

CAPITAL EXPENDITURES IN COSTS PER STUDENT

	HIGH	MEDIAN	LOW	AVERAGE
FIVE YEAR HISTORIC AVERAGE	1058	600	189	663
FIVE YEAR MAXIMUM (HISTORIC)	3793	1015	283	1172
FIVE YEAR MINIMUM (HISTORIC)	515	199	1	299
1977-1978 UNAUDITED	1165	379	60	551
FIVE YEAR PROJECTED	4701	1183	259	1258
1978-1979 PROJECTED	1658	333	79	469

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SECTION 4

CHIROPRACTIC SERVICE UTILIZATION

This chapter addresses several issues related to the use of chiropractic services in the United States. First, a summary of the significant findings and conclusions related to service utilization is presented. Second, an overview of service utilization places this topic in the context of the larger policy study of which it is a part. Subsequent partitions of this section describe the methodology of this section of the study; present estimates of the current level of service utilization nationally, based on the results of the survey of service providers; and provide additional analysis of the survey data. Such analysis is intended to develop better impressions of whether unmet demand for services exists and which factors may cause service utilization to increase or decrease.

Summary of Results

The following represent the significant findings related to service utilization:

- It is estimated that D.C.s will have 122.5 million patient visits in 1979 (130 million including recent graduates). Also, from survey data it is estimated that 6.8 million individuals will go to a D.C. in 1979, returning 17 more times for additional visits during the year. However, this may be a conservative estimate given that 7.5 million individuals saw a D.C. in 1974 according to the 1974 Health Interview Survey by the National Center for Health Statistics.
- It is estimated that DC.s nationally generated upwards of $1.3 billion in practice revenues in 1978.

- D.C.s offer a wide range of services. Most likely to be offered are physical exams, spinal and extremity adjustments and certain X-rays. Least likely are lab tests, blood counts in particular. Physiotherapy represents a significant proportion of total services delivered.

- Several factors seem to be directly related to the level of patient visits including:

  - the level of public awareness about D.C. availability
  - the number of recent D.C. graduates in the region
  - the number of D.C.s practicing in the area
  - the level of excess capacity in the area's chiropractic delivery system

- Other factors which seem to be inversely related to an area's level of patient visits include:

  - the number of patient care services provided per patient visit
  - the average tenure of practicing D.C.s

The following conclusions are offered based on these results.

- The extent and magnitude of variation in the service utilization data suggests that additional D.C.s might be absorbed nationally.

- Even those areas currently having a higher concentration of practicing D.C.s are likely to experience additional growth in the number of practitioners and and chiropractic patients.

Overview of Service Utilization

To begin, it is important to distinguish between service utilization and "demand" for chiropractic services. While this study can be described as one dealing with supply/demand issues, there are reasons for describing it as a study of service utilization instead of an analysis of "demand." First, there was little choice in the study design but to use certain measures which are only indirect indicators of demand -- patient visits, services provided, etc. Second, information from consumers themselves is not available to fill out the demand side aspects of the results. In summary then, this survey of practitioners is descriptive of chiropractic utilization, providing subjective evidence regarding demand for services.

Patient Visits Key to Utilization Measurement

The fact is that almost no reliable information is available which describes the chiropractic profession in the terms which this study has attempted. Further, it is important to choose utilization measures in such a way that they can easily serve as benchmarks, to be compared against future data. The emphasis on patient visits as the primary measure of service utilization is consistent with this thinking.

Other Utilization Measures

Service utilization can be represented by several different measures. While the bulk of this chapter and nearly all of the analysis will use patient visits as the characteristic variable, the number of individual patients served, the type and volume of patient care services provided and the amount of practice revenue generated annually by active D.C.s are also useful indicators of utilization levels.

Service Utilization Can Later be Related to Supply

The data regarding service utilization presented in this section is most useful when related to the number of practicing D.C.s. and their service-producing capacity. The number of active, practicing D.C.s then, together with their practice characteristics, serves to define supply while utilization measures provide subjective indicators of demand. From this analysis, important policy issues related to the adequacy of supply of D.C. services are addressed in Section 6.

Service Utilization Results

National levels of service utilization can be developed from the survey data using the formula presented below.

Total Number of Active Practicing D.C.s X Average Number of Weekly Patient Visits X Average Number of Weeks D.C.s Practice = Total Number of Patient Visits

Estimate of Total Patients

Using the data available from the survey of practicing D.C.s (over two years), we find that approximately 20,000 active, practicing D.C.s are experiencing an average of 125 patient visits per week, and plan on practicing an average of 49 weeks this year. These results lead to an estimate that D.C.s nationally will receive a total of approximately 122.5 million patient visits in 1979. (Limited survey and secondary data on patient visits for recent graduates indicate these

D.C.s have 8-10 million patient visits, making a total of just over 130 million for all D.C.s.)

Estimate of Total Patients

One might be tempted to use the same approach to determine the number of people (patients) who will use chiropractic services in 1979. The process is less reliable however because of the potential double counting as the weekly figures are extrapolated over a one year period. Survey results do indicate that patients return for D.C. services an average of 17 times each year. Applying this to the total number of patient visits calculated above yields an estimate that 6.8 million individuals used chiropractic services in 1979. This estimate would seem low given the results of the 1974 Health Interview Survey by the National Center on Health Statistics. That study indicated that 7.5 million people (or about 3.6% of the population) saw a D.C. in 1974.

Estimate of Practice Revenue

Survey results show that in 1978, taken as a group, D.C.s nationally generated approximately $1.27 billion in gross revenues from their practices. The average gross practice revenues for all practices is $50,000. If the lowest and highest (those D.C.s responding with annual gross revenues less than $10,000 and over $200,000) returns are eliminated however, the average is about $63,400 in gross revenue per year. Using data available on the type and number of patient care service offerings and service charges for them however, an alternative estimate of practice revenue would be approximately $2.0 billion annually. (This latter estimate may be inflated. Members of our advisory group said factors lowering this estimate would be: not all patient visits are charged for, especially when little or no service is provided (such as minor counseling); many D.C.s in rural areas offer prepaid care for entire families at substantially reduced rates; and sharing of services and facilities such as X-ray equipment among D.C.s, dentists, and physicians may lead to some double counting of services and lower fees. Nevertheless, $2.0 billion in spending on chiropractic care is possible given the survey responses).

Patient Care Services

Table 20 indicates quite naturally that as a group D.C.s offer a wide range of patient care services. The data also indicates great unanimity in terms of physical exminations, spinal and extremity adjustments and certain X-ray services. Generally, the services offered by the smallest proportion of D.C.s are laboratory services/tests, especially routine blood counts, and most physiotherapy treatments. Viewing the profession as a whole, it is interesting to note that while a naturally smaller proportion of D.C.s offer physiotherapy, this type of patient care represents a significant proportion of the total services delivered to patients because of the higher frequency with which they are performed.

Regional Data

Recalling that nationally, weekly patient visits averaged 124.7, the following results indicate existing regional variations:

TABLE 20 - UTILIZATION

PATIENT CARE SERVICES
WEIGHTED RESULTS

	PERCENT OFFERING SERVICE			TIMES/WEEK PERFORMED	
SERVICES OFFERED	N^1	N^2	PERCENT	N^3	AVERAGE NUMBER
X-RAY SERVICES					
1. Full Spine	1297	765	59%	660	6.6
2. Comprehensive area views . . .	1289	1060	82%	932	5.2
3. Limited area view	1273	1116	88%	982	5.4
4. Extremities	1251	999	80%	832	1.2
5. Chest	1148	551	48%	401	1.8
LABORATORY SERVICES/TESTS					
6. Urinalysis (in your office) . .	1349	619	46%	536	6.7
7. Routine blood count (in your office)	1272	225	18%	199	5.5
PHYSICAL EXAMINATION					
8. New patient	1430	1376	96%	1197	7.3
9. Old patient - routine	1296	1019	79%	867	9.2
10. Old patient - other than routine . . .	1173	925	79%	806	5.3
OFFICE VISIT/COUNSELING					
11. Psychological.	1268	705	56%	575	9.7
12. Dietary	1379	1157	84%	971	14.5
13. Hygienic	1191	668	56%	521	9.4
14. Exercise routine/development . .	1367	1219	89%	1040	16.5
OFFICE VISIT/ADJUSTMENT					
15. Spinal Adjustment(s).	1449	1449	100%	1252	119.7
16. Extremity Adjustments(s)	1332	1149	86%	1006	20.9
17. Pressure point or reflex techniques	1299	1017	78%	901	52.6

TABLE 20 - UTILIZATION (Continued)

PATIENT CARE SERVICES
WEIGHTED RESULTS

	PERCENT OFFERING SERVICE			TIMES/WEEK PERFORMED	
SERVICES OFFERED	N^1	N^2	PERCENT	N^3	AVERAGE NUMBER
OFFICE VISIT/PHYSIOTHERAPY					
18. Traction	1328	641	48%	539	25.4
19. Infrared	1220	246	20%	202	46.3
20. Ultra sound	1368	879	64%	744	43.6
21. Diathermy	1293	473	37%	390	28.9
22. Moist heat hydrocollator	1259	396	31%	319	41.7
23. Ice/cold packs	1273	570	45%	460	12.3
24. Low volt electrotherapy	1298	607	47%	509	38.2
25. Ultra violet	1210	138	11%	95	4.1
26. Whirlpool baths	1187	44	4%	26	10.0
27. Massage (vibrator)	1301	585	45%	479	67.1
MISCELLANEOUS SERVICES					
28. Colon therapy	1212	74	6%	60	9.0
29. Acupuncture/acupressure	1277	497	39%	406	35.3
30. Inhalation/oxygen therapy	1193	48	4%	24	8.4
31. Casts	1207	130	11%	93	2.4
PRODUCTS					
32. Vitamins/other diet supplements	1417	1189	84%	967	26.6
33. Supports/braces	1345	1106	82%	918	6.1

[1] Number of respondents to question on whether service is offered.
[2] Number indicating they offer the service.
[3] Number of respondents to question about frequency with which a service is offered.

Region	Patient Visits Per D.C. Per Week	Standard Error
West	126.3	4.4
Northeast	110.7	6.6
South	118.0	4.3
North Central	138.0	4.9
U.S. Average	124.7	

Regional differences do appear to be significant, indicating that certain areas of the country may indeed support higher rates of service utilization than others.

Adjusting for Regional Differences

Adjusting for differences in practioners and population, regional variation becomes more evident. Table 21 indicates that the West and North Central Regions generate many more patient visits than do the South and Northeast after population differences and the number of practicing D.C.s have been taken into account.

Factors Causing Significant Variation in Service Utilization

Any number of factors may account for the variation in regional service utilization levels. In an effort to determine which factors may be influential, it was decided to simply examine the survey results on a regional basis, noting when there appears to be a relationship between variables. Table 22 details regional results for a number of variables thought to be related to service levels.

A review of those regionalized results suggests the following findings:

TABLE 21 - UTILIZATION

REGIONAL UTILIZATION OF CHIROPRACTIC SERVICES
PATIENT VISITS PER 10 MILLION POPULATION

REGION	NO.PRACTICING D.C.S	AVERAGE WEEKS OF PRACTICE	AVERAGE WEEKLY PATIENT VISITS	ANNUAL NO. OF PATIENT VISITS (MILLIONS)	TOTAL POPULATION (UNITS-10 MILLION) 12/31/78	PATIENT VISITS PER UNIT POPULATION
WEST	5680	48.6	126.3	34.865	4.0521	8.60
NORTHEAST	4414	48.8	110.7	23.845	4.9443	4.82
SOUTH	5636	49.5	118.0	32.920	7.1354	4.61
NORTH CENTRAL	6561	49.1	138.0	44.456	5.8452	7.60
U.S. TOTAL	22,291[1]	49.0	124.7	136.205[2]	21.9770	6.20

[1] Includes recent graduates who have entered practice only in the last two years.

[2] These estimates assume that recent D.C. graduates entering practice in the last two years have fully established practices and are seeing 124.7 patients per week. At the time of this writing they are building practices and see fewer patients; thus there is no conflict with the other estimates in the report. This estimate would be accurate for this group of D.C.s in 1980-1981. Available regional data does not allow a better current estimate.

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TABLE 22 - UTILIZATION

REGIONAL RESULTS - SELECTED VARIABLES

REGION	Percent of Patient Visits by Age				Percent of Patient Visits by Sex		Percent of Patient Visits Referred by M.D.s	Number of Patient Care Services Received Per Patient Visit	Degree to Which Public is Well Informed 1=Not Well Informed 7=Very Well Informed	
	17 Yrs. & Under	18-44 Years	45-64 Years	65 Yrs & Over	Male	Female			Availability of D.C.s	Services Offered
West	8.5	47.0	32.7	14.4	42.7	57.3	2.5	1.97	4.32	3.15
Northeast	8.3	39.3	38.5	15.7	44.4	55.3	3.1	2.62	3.98	3.26
South	7.3	41.3	36.3	17.1	45.3	54.7	2.4	3.04	4.00	3.35
North Central	9.2	38.4	37.2	16.2	45.3	54.5	3.0	2.36	4.08	3.46

REGION	Patient Care Service Charge Levels		Number of Additional Patient Visits D.C.s Would Prefer Weekly	Number of Recent D.C. Graduates	Average Tenure of Practicing Graduates	Number of M.D.s 1970	M.D.s Per 100,000 Population	D.C.s Per 100,000 Population
	Physical Exam	Physio. Treatment						
West	1 highest	2	83	939	15.0 years	60,292	149	14
Northeast	2	1 highest	70	578	18.0 years	96,665	196	9
South	3	3	66	766	18.9 years	78,139	110	8
North Central	4 lowest	4 lowest	73	807	16.8 years	76,892	132	11

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- Patient age and sex data varies little between regions and does not apear to contribute to the variation in service utilization between areas. Of interest is the volume of patient visits by younger (under 44 years) patients and by females. The Western region especially seems to have been particularly successful in attracting patients in these groupings.

- Patient referrals by M.D.s are a relatively insignificant source of chiropractic patients. No relational patterns can be observed in the data.

- Interestingly, there appears to be an inverse relationship between the quantity of patient visits to D.C.s and the number of different patient care services received per visit.

- One would certainly expect that the degree to which the public is well-informed about chiropractic would directly affect the level of service utilization in an area. While regional variations are not large, public awareness about D. C. availability (at least as perceived by the D.C.s themselves) falls in a pattern consistent with service utilization data.

- Also, one would predict service charge levels and the number of (competing) M.D.s might cause an increase or decrease in service utilization. Charges appear to have no effect at all, and while significant differences exist between regions in the number of practicing M.D.s who might compete for patients with D.C.s, no relational patterns can be observed.

- Three variables do present an apparent, direct relationship with service utilization. The average tenure of practicing D.C.s and the number of D.C.s recently graduated by schools in the region both seem to correlate with patient visit data. Likewise, the number of practicing D.C.s seems, as it should, to vary directly with patient visits when adjusted for regional population differences.

- Surprisingly, excess service capacity expressed in terms of the number of additional weekly patient visits desired by D.C.s practicing in each region appears to "correlate" directly with current levels of service utilization. One might expect an inverse relationship between the two.

Insights into Adequacy of D.C. Services

A separate Section (6) in this report has been developed to discuss the adequacy question. As far as the analysis in this section is concerned, the following generalizations seem to be supported by the survey results:

- Regional variations in demand (service utilization) exist, are significant, and may indeed suggest that more chiropractic services can be consumed and therefore more practicing D.C.s could be absorbed.

- It is possible to estimate the number of D.C.s which might be added to the labor force presuming that existing high levels of service consumption found regionally can be applied nationally.

- Certain variables do appear to explain and affect the variation in service utilization. Basically, the results seem to suggest that areas having the highest concentrations of D.C.s already, also seem to (1) attract more new D.C. graduates, (2) generate more patient visits, (3) desire, and one presumes, actively seek additional new patients, and (4) offer fewer patient care services per visit.

Limitations

The process by which estimates of national, aggregate levels of service utilization were developed cannot be expected to produce precise results. While the standard errors of the mean values used in the estimates were relatively small, the extrapolation process is such that the amount of error expands rapidly as the average values are multiplied together. Also, it must be remembered that the variation (range) of results was especially large for many of the key variables. Care must therefore be taken in interpreting and describing the actual distribution of responses on a given question only in terms of a single mean value.

Finally, the methodology employed only permits an impressionistic analysis of the data. That is, correlation and regression techniques were neither planned for nor expected.

SECTION 5

SUPPLY OF CHIROPRACTORS AND CHIROPRACTIC SERVICES

The previous Section discussed the use of chiropractic services and factors affecting the level of use. In this Section we will describe the supply of Doctors of Chiropractic, their ability or capacity to deliver services, and recent trends in D.C. supply which largely determine the potential number of services which can be delivered in the future.

The divisions of this Section include: a summary of major findings and conclusions, a brief look at the purposes and issues of this portion of the research, a description of the data sources, and a presentation of the detailed survey results.

Summary of Major Findings and Conclusions

Below are presented seven major findings regarding the investigation of supply of chiropractors, the number of new D.C.s entering practice in five years, the location and character of their practices, and their ability to provide services.

- About 23,000 D.C.s are providing chiropractic services to the public on a full or part time basis at the end of 1979. Included in this group are more than 3,000 recent graduates who have begun practice in the last two years.

- There will be between 10,000 and 13,000 new Doctor of Chiropractic graduates over the next five years. This represents a 35% to 48% increase in the current number of active D.C.s. Meanwhile only 7% of the present supply of D.C.s plan to leave active practice over the same five-year period.

- The number of students enrolled in chiropractic colleges has grown considerably during the past 10 years. From 1969 to 1978 total enrollment increased from an estimated 2,500 to about 7,900 students, or nearly tripled. It has doubled since 1973. Further, five new chiropractic colleges have begun operation since 1974 and three more schools are being planned. In 1980, estimated enrollment will be over 8,900 students in 15 colleges.

- D.C.s are not evenly distributed across the United States. The national D.C. population ratio is 10.1 per 100,000. Regionally it ranges from 8.0 in the Southern Census Region to 14.0 in the Western Region. The variation from state to state is even greater, from 1.8 in Virginia to 23.0 in Iowa.

- Slightly more than 40% of actively practicing D.C.s are located in areas with fewer than 25,000 people. Over 33% are in cities of over 100,000 people. This pattern is changing slightly, since only 36% of recent graduates are entering practice in towns of less than 25,000 people, and 37% are entering practices in cities of over 100,000.

- Over 76% of D.C.s in practice for more than two years are in solo practices. However, only 56% of recent graduates are entering solo practices, the remainder (44%) are entering some form of group practice.

- The average D.C. works 43.7 hours per week and 49 weeks a year; an average of 33.1 hours per week are spent in patient care, 7.4 hours are for related office work, and the remainder in other activities such as research, teaching, or professional organization functions. Only 10.1% of the D.C.s work less than 30 hours per week and fewer than 7% spend less than 20 hours per week on patient care.

Number of D.C.s Has Not Been Accurately Determined Before

Recent studies have not accurately determined the number of active or retired D.C.s, primarily because the profession has not been well studied. Prior estimates have varied considerably. For example, in 1961 the chiropractic associations estimated there were 25,000 practicing D.C.s.[1] The census estimate for 1960 was 14,360 practicing D.C.s; in 1970 it was 13,729. Meanwhile the National Center for Health Statistics found 17,559 in 1974; and the Federation of Chiropractic Licensing Boards found 29,007 active state chiropractic licenses, but only 17,895 residents licensed to practice chiropractic in 1976.

Thus a large effort in this part of the study was to develop an accurate and comprehensive inventory of D.C.s. This was accomplished using association membership and state license lists (from both major associations and all 50 states). College graduation records were not used because of their inadequate quality. The lists served as our universe of D.C.s in practice over two years, available for the chiropractic labor market.

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[1] Wall Street Journal, August 31, 1961, p. 1.

(The list development and sampling procedures are further described in Section 2) From survey responses by this group, estimates were developed of the proportion of D.C.s who are actively practicing, active in another profession, or retired.

Data Sources About the Supply of D.C.s and D.C. Service

Data regarding the supply of D.C.s was gathered from all three groups surveyed -- chiropractic colleges, recent graduates and service providers (D.C.s in active practice more than two years). The general survey procedures are discussed in D.C. Service Section 2. The issues related to collection of information describing the supply of D.C.s and chiropractic services are presented here.

Data Gathered and Analyzed Relative to the Supply of D.C.s

In describing the status of licensed D.C.s and counting the number of D.C.s actively practicing in the United States, there are several important issues about which we gathered information for analysis. Data on these issues was required from all three groups surveyed. For example:

- Where are D.C.s located? Information about the distribution of D.C.s across regions, states, and towns and cities of various sizes is needed from service providers and recent graduates.
- How many services do D.C.s provide? To find the capacity of the chiropractic profession to deliver services one needs to know the number of hours spent in patient care, the weeks worked per year, and the number of patient visits per unit of time from service providers.

- What are the trends in the supply of D.C.s and their capacity to provide services in the next five years? Determination of these trends requires data on the plans of service providers to expand, contract or retire from their work efforts, the number of new graduates entering practices, the number of students colleges enroll and graduate, changes in productivity caused by added personnel (C.A.s), and several other factors.

Discussion of Study Results Regarding Supply of D.C.s and Services

The presentation of study results regarding the supply of D.C.s, chiropractic services, and the factors that affect supply is divided into six major areas:

- The number of D.C.s, and their demographic characteristics -- providing (or not providing) chiropractic services, levels of activity, age, income, tenure in practice, college of graduation, and licensure status.
- A description of D.C. practices -- type of practice, legal form, numbers of members in group practices.
- Where D.C.s are located -- those practicing, those retired, data for regional D.C. population ratios, urban or rural locations.
- Capacity of the system -- hours/weeks worked, availability of support personnel.
- Trends in supply over the next five years -- replacement rates among D.C.s, projected numbers of graduates, where new graduates locate practices, types of practices new graduates enter.

Much of the data presented below is descriptive. In Section 6, more analysis is done with regard to the adequacy of supply of D.C.s for current and future use of chiropractic services.

Numbers of Active D.C.s and Their Characteristics

There are about 23,000 active D.C.s in the United States at the end of 1979. This estimate is based on projections from the Surveys of Service Providers (D.C.s active more than two years) and Recent Graduates. Among the service provider universe of 21,383[1] from which the sample of 3,265 D.C.s was surveyed, 19,565 D.C.s or 91.5% are active on a full or part time basis. And 8.2%, or 1753 are retired or completely inactive. Further, some respondents (3%) who considered themselves active indicated that they were active only sporadically and answered the segment of the questionnaire intended for inactive D.C.s (See Table 8 in Section 2). This amounts to about 587 D.C.s nationally. For purposes of this study we defined an active D.C. as any one who indicated that he offered chiropractive services to the public and receives fees from patients or third party payers.

The 3,090 recent graduates who have entered practice in the last two years (Fall 1976 to Fall 1978) must be added to this number of active D.C.s (19,565). This estimate is based on the survey of 3640 recent graduates. Of this group 15.1%[2] or 550 graduates had not yet entered practice at the time of the survey (Spring and Summer 1979) and 84% had entered practice. Of those

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[1] Section 2, Description of the Study, provides a complete description about how this exhaustive list of D.C.s was developed for the study.

[2] Includes less than 1% that entered and left practice since graduation.

550 graduates who had not yet entered practice, 90% plan to enter practice as soon as possible or within one year. (Delays in entering practice are most frequently caused by the respondents not yet having a license by the time of the survey mailing [61.6%]. Lack of financing was next most frequently given reason [6.6%].) Thus, the best estimate of the number of practicing D.C.s at the end of 1979 is about 23,000.

Inactive Licensed D.C.s Described

Among inactive respondent D.C.s who make up 10% of the sample, the largest group is retired (46.6%), another 26.4% are active in the field of chiropractic but not practicing (i.e. teaching, research, professional association activity, or administration), 17% are active in another profession and 10% are not active because of semi-retirement, maternity leaves, health, or being between D.C. jobs. We have no trend data regarding past years, but it can be stated that less than 2% of all licensed D.C.s in 1978-1979 have left their practices for other professions.

Work Effort of Practicing D.C.s

Using results of the service provider questionnaire, one finds that the average practicing D.C. works 43.1 hours per week; and spends 33.1 hours in patient care, 7.4 hours in related office work, and the remainder on other chiropractic activities such as teaching/administrating in chiropractic colleges, research, professional organization activities and lecturing. Only 10.1% work less than 30 hours per week, and less than 7% spend fewer than 20 hours in patient care.

The average number of weeks active D.C.s planned to work in 1979 is 49. Less than 2% practice fewer than 40 weeks a year and less than 9% practice 45 or fewer weeks a year. Over 90% of D.C.s in active practice more than two years thus appear to have full-time practices, working at at least 30 hours per week and 45 weeks per year.

Demographic Characteristics of Practicing D.C.s

The typical practicing D.C. has been in practice for 17 years. Over 15% have been in practice for over 30 years (not including new graduates from the last two years, 1977-1978). He or she is 45 years old, while 12% are 60 years or older, and 39% are 50 years or older. Nearly all are white (97.8%). Less than 1% are either Black, Hispanic, American Indian or Asian. Further, 96.8% are male and only 3.2% are female.

The racial and sex composition of the profession appears to be changing, since more than 10% of responding recent graduates are female and just over 1% are of Hispanic or Asian descent.

Many D.C.s Have Multiple Licenses

While about 60% of D.C.s are licensed to practice in only one state, over 40% are licensed to practice in more than one state (29% in two states, 11% in three or more). The five most frequently mentioned states in which respondents are licensed were (adjusted for projection in the nation as a whole): California (16.4%), Florida (9.3%), North Carolina (8.4%), Missouri (7.1%), and Pennsylvania (6.6%).

College of Graduation

Among practicing D.C.s over 93% have graduated from currently operating colleges or colleges these schools have absorbed or taken over (See Table 23). The college of graduation most frequently mentioned was Palmer College of Chiropractic (34.8% among practicing D.C.s and 38.0% among all D.C.s). The second most frequently mentioned college among active D.C.s was National College of Chiropractic (or Lincoln) with over 18% of D.C.s nationally; third was Logan Chiropractic College with over 11%; and fourth, Los Angeles Chiropractic College with over 7%. No other college acounted for more than 5% of active D.C.s. These percentages may change in the future because while the percentage of graduates from active colleges shows Palmer as the largest college, the proportions provided by other schools are growing (See Table 24).

The Practice Characteristics of The 23,000 Active D.C.s

Below we describe key practice characteristics for both the 19,565 D.C.s who have been actively practicing for more than two years and for the 3,090 entrants to the D.C. labor market since 1976.

o Type of practice Among practicing D.C.s the most frequently mentioned type of practice is private or solo (76.9%), followed by associate or commission,[1] and group or partnership. Among recent graduates the type selected for entry is different. Only 56.5% are in private (solo) practice, while 43.5% are in some form of associate or group practice. (See Table 25) This

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[1] See Appendix I, Glossary of Terms, in Volume II of this report.

TABLE 23 - SUPPLY

COLLEGE OF GRADUATION FOR PRACTICING DOCTORS OF CHIROPRACTIC (ESTIMATED FROM SURVEY)

COLLEGE	PERCENT OF GRADUATES
CLEVELAND (KC)	3.0%
CLEVELAND (LA)	3.2%
LIFE	-
LOGAN	11.2%
LOS ANGELES	7.2%
NATIONAL	18.7%
NEWYORK	5.0%
NORTHWESTERN	2.3%
PALMER	34.8%
PASADENA	-
SHERMAN	.2%
TEXAS	4.2%
WESTERN STATES	3.1%
COLLEGES NOT NOW OPERATING	6.7%
	100%
	N = 148

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TABLE 24 - SUPPLY

PROPORTION OF GRADUATES OF CHIROPRACTIC COLLEGES FROM EACH COLLEGE IN THE LAST TWO YEARS (DECEMBER 1976 - DECEMBER 1978)

COLLEGE	PERCENT OF GRADUATES
CLEVELAND KC	4.5%
CLEVELAND LA	9.1%
LIFE	4.5%
LOGAN	9.5%
LOS ANGELES	8.7%
NATIONAL	13.7%
NEW YORK	8.5%
NORTHWESTERN	3.0%
PALMER	25.8%
PASADENA	4.9%
SHERMAN	4.5%
TEXAS	3.0%
WESTERN STATES	1.0%
	100.0%
	N = 3640

TABLE 25 - SUPPLY

TYPE OF PRACTICE MAINTAINED BY ACTIVE DC'S AND ENTERED BY RECENT GRADUATES

TYPE OF PRACTICE	PERCENT OF ACTIVE DC'S	PERCENT OF RECENT GRADIATES
PRIVATE (SOLO) PRACTICE	76.9%	56.5%
ASSOCIATE/ COMMISSION	11.3%	24.8%
GROUP/ PARTNERSHIP	8.9%	13.8%
OTHER	3.0%	4.6%
	100.1%	99.7%
	N=1476	N=1786

NOTE: Columns do not add due to rounding.

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may be just a stage in the graduates' development, but multi-D.C. clinics appear to be increasing in numbers, as in medicine.

- Legal Form of Practice Similarly there are differences between the legal forms of practices maintained by active D.C.s and those entered by recent graduates. The most frequently mentioned form among active D.C.s is the sole proprietorship (75.2%); the professional corporation (11.1%) is next. Among recent graduates the sole proprietorship (60.2%) still leads other forms, but the professional association (16.2%) is next. (See Table 26)

- Group Practice The average number of D.C.s in a group practice is 2.5 for both active D.C.s and recent graduates. The range for active D.C.s is from 2 to 11, and for recent graduates 2 to 9.

- Multi-Office Clinics Among recent graduates slightly more (7.8%) appear to enter multi-office clinics versus already active D.C.s (7.0%). The average number of offices among active D.C.s having multi-office practices is 2.0, for recent graduates it is 2.9 (although 92% of the employers of recent graduate have just two offices).

- Specialty Training Nearly 21% of active D.C.s have had (since the D.C. degree) post graduate study in certain areas such as nutrition, orthopedics, neurology, and post graduate adjusting procedures. But, only about 100 D.C.s of 23,000 D.C.s nationally

TABLE 26 - SUPPLY

LEGAL FORM OF PRACTICE MAINTAINED BY ACTIVE DC'S AND ENTERED BY RECENT GRADUATES

LEGAL FORM OF PRACTICE	ACTIVE DC'S PERCENT	RECENT GRADUATES PERCENT
SOLE PROPRIETORSHIP	75.2%	60.2%
PROFESSIONAL CORPORATION	11.1%	7.8%
PARTNERSHIP	6.3%	11.4%
PROFESSIONAL ASSOCIATION	5.5%	16.2%
OTHER	1.9%	4.5%
	100%	100%
	N = 1452	N = 1752

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are recognized specialists with Diplomate status from one of the chiropractic associations.

- Employees of Practicing D.C.s Over 79% of practicing D.C.s employ office personnel to assist them in their practices. Some D.C.s in clinic settings employ as many as 40 people to help them in their practices. Most frequently mentioned full-time personnel are Chiropractic Assistants trained on the job; second, are secretary receptionists; and third, are Chiropractic Assistants who are college trained. (See Table 27) A similar ranking exists for part-time personnel. Chiropractic Assistants may be valuable personnel. This is because D.C.s believed that a Chiropractic Assistant could increase the number of patients they see by an average of 4.4 per hour.

Location and Density of D.C.s

Table G shows the state and regional distribution of D.C.s (using the master list (universe) of practicing D.C.s in the United States) and indicates a level of concentration with a D.C. per 100,000 population ratio. These figures are for the sample universe and include some inactive D.C.s. The number of D.C.s is largest in the North Central Region and the smallest in the Northeastern Regions. The region with the highest D.C. population ratio is the Western Region. The five states with the highest D.C.-population ratios are: Iowa (23.2), Kansas (19.5), New Hampshire (17.8), Washington (16.7, and South Dakota (16.4).

There is a wide variation in these state ratios as one can see from the table, from less than one D.C. per

TABLE 27 - SUPPLY

FULL TIME PERSONNEL EMPLOYED TO ASSIST DOCTORS OF CHIROPRACTIC

TYPE OF EMPLOYEE	AVERAGE NUMBER EMPLOYED	MEDIAN NUMBER EMPLOYED	NUMBER INDICATING USE OF	PERCENT OF PRACTICING D.C.s INDICATING USE OF	PERCENT OF PRACTICING D.C.S INDICATING USE OF THESE PERSONNEL ON A PART TIME BASIS
CHIROPRACTIC ASSISTANT (COLLEGE TRAINED)	2.4	1.0	132	9.0%	2.4%
CHIROPRACTIC ASSISTANT (TRAINED ON THE JOB)	3.8	1.0	583	39.6%	20.3%
LPN OR RN	1.1	1.0	41	2.8%	1.5%
CHIROPRACTIC INTERN	1.0	1.0	40	2.7%	1.0%
SECRETARY/ RECEPTIONIST	4.5	1.0	458	31.1%	17.9%
OTHER *	3.7	1.0	49	3.3%	2.0%

*MOST FREQUENTLY MENTIONED AMONG OTHER TYPES OF PERSONNEL ARE ACCOUNTANTS (23 OF 78 MENTIONED) AND X-RAY TECHNICIANS (11 OF 78 MENTIONED)

100,000 in the District of Columbia to 23.2 in Iowa. (See Table 28)

Density of D.C.s Per Capita: Regional Data

Table 29 shows estimates of currently active D.C.s by region across the United States census regions and the related D.C. population ratio. This table is based on survey results from both service providers and recent graduates. The highest ratio (per 100,000 population) among the four major regions is in the Western Region (14.0), and the lowest is in the Southern Region (8.0). Among the nine subregions within the four major regions, the highest D.C. density is in the West North Central and the lowest in the East South Central.

There is some variation from Table 28 which is based on the entire universe of D.Cs practicing more than two years, which includes inactive D.C.s. Most retired D.C.s are in the Pacific and Mountain subregions (See column 2 in Table 29); and most graduates enter practice in the Western and North Central Regions which have the highest concentrations of D.C.s per 100,000. Once recent graduates are added to regional D.C. totals, it is only in those subregions where there is a large portion of retired D.C.s that the D.C. population ratios decline, as seen in the differences between Table 28 and Table 29 -- Mountain, Pacific and East South Central.

Urban and Rural Locations of D.C.s

Doctors of Chiropractic are often viewed as rural health care providers. However, study results show that this is only partly true. Table 30 shows the national distribution of practicing D.C.s by size of town or

TABLE 28 - SUPPLY

DISTRIBUTION OF DC'S ACROSS THE UNITED STATES AND RELEVANT DC POPULATION RATIOS FOR 1978 POPULATION ESTIMATES.*

REGION SUB-REGION STATE	TOTAL NUMBER OF DC'S	POPULATION ESTIMATE (1978 ESTIMATE IN THOUSANDS)	DC POPULATION RATIO (PER 100,000)
NATIONAL TOTAL	21,383	219,768.5	10.3
NORTH CENTRAL REGIONS	6,134	58,451.5	10.5
EAST NORTH CENTRAL	3,503	41,321.1	8.5
ILLINOIS	962	11,289.4	8.5
INDIANA	440	5,361.4	8.2
MICHIGAN	872	9,201.3	9.5
OHIO	671	10,769.0	6.2
WISCONSIN	558	4,700.0	11.9
WEST NORTH CENTRAL	2,631	17,130.4	15.4
IOWA	678	2,917.2	23.2
KANSAS	462	2,366.0	19.5
MINNESOTA	524	4,040.7	13.0
MISSOURI	686	4,859.8	14.1
NEBRASKA	95	1,583.0	6.0
NORTH DAKOTA	71	660.9	10.7
SOUTH DAKOTA	115	702.8	16.4
SOUTHERN REGIONS	5,253	71,353.5	7.4
SOUTH ATLANTIC	2,408	34,981.7	6.9
DELAWARE	38	587.3	6.4
DISTRICT OF COLUMBIA	6	677.5	.9
FLORIDA	1,123	8,766.4	12.8
GEORGIA	399	5,110.6	7.8
MARYLAND	158	4,185.2	3.8
NORTH CAROLINA	311	5,627.1	5.5
SOUTH CAROLINA	215	2,934.8	7.3
VIRGINIA	93	5,210.3	1.8
WEST VIRGINIA	65	1,882.5	3.5
EAST SOUTH CENTRAL	1,044	14,093.2	7.4
ALABAMA	270	3,770.1	7.2
KENTUCKY	405	3,524.2	11.5
MISSISSIPPI	209	2,418.2	8.6
TENNESSEE	160	4,380.7	3.7

*NOT ADJUSTED FOR RETIREMENT AND NEW LABOR MARKET ENTRANTS.

TABLE 28 - SUPPLY (Continued)

DISTRIBUTION OF DC'S ACROSS THE UNITED STATES AND RELEVANT DC POPULATION RATIOS FOR 1978 POPULATION ESTIMATES.*

REGION SUB-REGION STATE	TOTAL NUMBER OF DC'S	POPULATION ESTIMATE (1978 ESTIMATE IN THOUSANDS)	DC POPULATION RATIO (PER 100,000)
WEST SOUTH CENTRAL	1,801	22,278.6	8.1
ARKANSAS	166	2,194.5	7.6
LOUISIANA	247	3,986.2	6.2
OKLAHOMA	346	2,926.7	11.8
TEXAS	1,042	13,171.2	7.9
NORTHEASTERN	4,032	49,442.8	8.2
NEW ENGLAND	738	12,343.6	6.0
CONNECTICUT	133	3,137.9	4.2
MAINE	68	1,100.0	6.2
MASSACHUSETTES	287	5,802.1	4.9
NEW HAMPSHIRE	156	875.7	17.8
RHODE ISLAND	37	935.7	4.0
VERMONT	57	492.2	11.6
MIDDLE ATLANTIC	3,294	37,099.2	8.9
NEW JERSEY	685	7,343.2	9.3
NEW YORK	1,482	17,938.7	8.3
PENNSYLVANIA	1,127	11,817.3	9.5
WESTERN REGIONS	5,964	40,520.7	14.7
MOUNTAIN	1,357	10,460.9	13.0
ARIZONA	360	2,418.2	14.9
COLORADO	358	2,710.3	13.2
IDAHO	90	892.0	10.1
MONTANA	101	783.8	12.9
NEVADA	77	668.0	11.5
NEW MEXICO	175	1,229.7	14.2
UTAH	145	1,321.3	11.0
WYOMING	51	437.6	11.7
PACIFIC	4,607	30,059.8	15.3
ALASKA	36	427.8	8.4
CALIFORNIA	3,550	22,482.0	15.8
HAWAII	43	911.5	4.7
OREGON	348	2,462.3	14.1
WASHINGTON	630	3,766.2	16.7

*NOT ADJUSTED FOR RETIREMENT AND NEW LABOR MARKET ENTRANTS.

TABLE 29 - SUPPLY

DISTRIBUTION OF PRACTICING DC'S ACROSS THE UNITED STATES CENSUS REGIONS AND RELEVANT POPULATION RATIOS FOR 1978 POPULATION ESTIMATES*

REGION SUB REGION	NUMBER OF DC'S IN SAMPLE	PERCENT NOT ACTIVE	NUMBER OF RECENT GRADS. ENTERING	NUMBEROF DC'S (EST.)	ACTIVE DC POPULATION RATIO
NORTH CENTRAL	6,134	6.2%	807	6,561	11.2
EAST NO. CENTRAL	3,503	6.1%	484	3,773	9.1
WEST NO. CENTRAL	2,631	6.3%	323	2,788	16.3
SOUTH	5,253	7.3%	766	5,636	8.0
SO. ATLANTIC	2,408	4.6%	432	2,729	7.8
EAST SO. CENTRAL	1,044	16.0%	76	953	6.8
WEST SO. CENTRAL	1,801	8.1%	258	1,913	8.6
NORTHEAST	4,032	4.9%	578	4,414	8.9
NEW ENGLAND	738	1.3%	119	847	6.9
MIDDLE ATLANTIC	3,294	6.7%	459	3,532	9.5
WEST	5,964	20.5%	939	5,680	14.0
MOUNTAIN	1,357	26.3%	195	1,195	11.4
PACIFIC	4,607	16.7%	742	4,580	15.2
TOTAL	21,383		3,090	22,291	

*ADJUSTED FOR NEW ENTRANTS AND RETIREMENTS.

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TABLE 30 - SUPPLY

SIZE OF TOWN IN WHICH ACTIVE DC'S MAINTAIN PRACTICES AND IN WHICH RECENT GRADUATES ENTER PRACTICE

SIZE OF TOWN	PORTION OF D.C.s IN PRACTICE	PORTION OF RECENT GRADUATES ENTERING PRACTICE
SMALL TOWN (UNDER 2,500)	10.2%	7.7%
LARGE TOWN (2,500 TO 24,999)	30.5%	28.7%
SMALL CITY (25,000 TO 99,999)	26.1%	26.8%
LARGE CITY (OVER 100,000)	24.1%	22.0%
SUBURB OF LARGE CITY	9.2%	14.9%
	100%	100%
	N = 1,481	N = 1,790

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city. Over 40% of practices (about 8,000) are in towns with fewer than 25,000 people (although 17% of these D.C.s are in towns adjacent to cities of over 25,000 population). Twenty percent practice in small cities; and over 33% are in cities (or suburbs) of more than 100,000 population.

The distribution of recent graduates differs somewhat. A similar proportion (over 26%) enter practice in small cities (25,000 to 100,000), however only 36% enter practice in towns with fewer than 25,000 population and nearly 37% enter practice in suburbs of over 100,000. Further, 25% of those in towns are in towns within five miles of cities of populations greater than 25,000. This indicates recent graduates are entering more urban practices.

Capacity of D.C.s to Deliver Chiropractic

Several indicators related to the capacity of the chiropractic delivery system are developed in this section. The goal in this Section is to describe the indicators for later use in Section 6 to determine whether limits to supply are causing constrained service utilization. The ingredients for estimating capacity of the chiropractic delivery system include:

o Patient Visits per Hour The average D.C. sees 3.8 patients per hour (based on dividing patient visits by hours spent in patient care per week). The median D.C. also sees nearly four patients per hour. If one adds office work related to patient care to the division, the average drops to 3.1 patients per hour. Nevertheless, there is a wide range of capabilities of

D.C.s to accommodate patient visits, it is 1 to over 10 per hour. Much of the variability may be caused by the use of assistant personnel.

- Hours Worked per Week The average of total hours worked per week by a D.C. is over 43 hours. This is very close to the median 42 hours per week. While not all this time is spent in patient care or office work related to patient care, over 90% of a D.C.s time is spent on these activities. Thus, hours spent in and related to patient care average 40.5 hours per week. This consists of 33.1 hours in direct patient care and 7.4 hours in related office work. One image of D.C.s is that they practice only part time. We found that only 10% practice less than 30 hours per week and over 25% practice 50 or more hours per week. (See Tables 31 and 32)

- Weeks Worked per Year On the average, D.C.s worked 48.7 weeks in 1978 and plan to work 49 weeks in 1979.

- Use of Auxiliary Personnel As noted above 79% of D.C.s have employees. Those using Chiropractic Assistants (C.A.s) believe that the C.A.s can apparently double a D.C.s productivity. Respondents employing C.A.s indicated that C.A.s could increase patient visits per hour by 4.4 visits versus not employing a C.A.

Combining these indicators of capacity, one can make two interesting projections on a national scale.

TABLE 31 - SUPPLY

HOURS SPENT IN PATIENT CARE BY PRACTICING D.C.S

HOURS IN PATIENT CARE	NUMBER OF D.C.S	PERCENT
0-10	47	3.25%
11-20	117	8.09%
21-30	447	30.89%
31-35	281	19.42%
36-40	355	24.53%
41-45	93	6.43%
46-50	75	5.18%
51+	32	2.21%
	N=1447	100.0%
	MEAN=33.064	

1977-1979 Study of Education and Manpower in the Chiropractic Profession

TABLE 32 - SUPPLY

DISTRIBUTION OF HOURS WORKED WEEKLY BY D.C.S

HOURS WORKED WEEKLY	NUMBER OF D.C.S	PERCENT
0-10	18	1.27%
11-20	33	2.33%
21-30	133	9.39%
31-35	149	10.52%
36-40	272	19.21%
41-45	218	15.40%
46-50	232	16.38%
51+	361	25.49%
	N=1416	99.99%
	MEAN=43.735	

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- If a D.C. sees patients at the national average rate during an average 33.1 hours per week spent in patient care he will have about 125 patient visits a week.[1]

- If a D.C. has a trained C.A. working for him, this is believed to increase productivity by 4.4 visits per hour or 146 visits per week using the averages. This is a doubling of capacity.[2]

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[1] The best estimates of patient visits per hour is 3.8 visits used in the text above, because it takes into account the variability of the time required for all different types of patient visits. A second estimate can be made by asking how many patient visits D.C.s believe they typically have an hour. The average D.C. believes he sees 5.4 patients per hour (the median four patients per hour). The differences are substantial when projected to a week's visits and will provide a wide range for any estimate of capacity. If a D.C. sees patients at the rate he typically does (5.4 visits per hour on the average), he could have 178.7 visits in 33.1 hours. This is a 40% increase.

[2] Some experts in the profession believe that C.A.s may increase a D.C.'s productivity by less than this number of patient visits per hour. In their experience a 50% increase in productivity may be more reasonable, but no formal studies of C.A. productivity have been done to verify expert opinion or this finding based on survey responses.

The sample includes a wide variety of practices from one-person offices to clinics with over 40 employees. So, while the standard error in the averages is small (less than 1 in most cases), there is a wide variation in actual response. This may cause some minor problems in using a professional standards approach based on averages to measure whether the chiropractic care delivery system capacity is being limited by the supply of D.C.s. The approach has been used with M.D.s and Dentists. Thus, we believe it can be helpful as one of several indicators used to examine the adequacy of D.C. supply for service utilization in Section 6.

Trends in Supply Over the Next Five Years

There are six major factors which will affect the supply of D.C.s and their ability to deliver services in the next five years. Factors leading to an increase in supply are:

- New entrants into the labor market In the last two years over 3,000 recent graduate D.C.s have gone into practice (and over 500 more not in practice at the time of the survey are planning to enter practice in the next year). This is 13.9% of current practitioners every two years. Furthermore, in the next year we expect about 2,000 graduates to enter the labor force, and approximately 2,200 ought to graduate in each of the following four years. Thus, nearly 11,000 new D.C.s will enter the labor force in the next five years. The number could be as high as 13,000 according to the colleges.[1] So as a group the colleges surveyed indicated that they would graduate 13,000 new D.C.s in the next five years. However, some experts believe that some colleges may be overoptimistic about their ability to produce graduates. These experts believe 10,000 to be more realistic. We will use this same range and the best estimate for the remainder of the report.

- Expanding chiropractic college enrollments Chiropractic college enrollments have tripled between 1969 and 1978, and doubled since 1973. Table 33 presents the enrollment trend. Five schools have begun operation since 1974, and three more colleges are being planned. Estimates from the colleges indicate that there may be as many as 8,900 students in chiropractic colleges in 1980.

- Increased use of Chiropractic Assistants Professional seminars and associations are encouraging the expanded use of C.A.s in D.C. practices because they allow D.C.s to be more productive. While this study did not gather any trend data about growth in C.A. use by D.C.s, secondary information indicates four schools now offer C.A. certificates and other schools are considering similar programs. As indicated above, use of

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[1] Our best estimate is about 11,000 new DC.s given the number of students enrolled at October 15, 1978 and responses by colleges about new student enrollment. Some newer colleges indicated that their enrollments of new students could expand significantly.

TABLE 33 - SUPPLY

STUDENT ENROLLMENT AT CHIROPRACTIC COLLEGES OVER THE PAST TEN YEARS

Year	Cleve-Land (KC)	Cleve-Land (LA)	Life	Logan	Los Ange-les	Nat-ional	New York	North West-ern	Palmer	Pasa-dena	Sher-man	Texas	Wes-tern States	North-ern Cali-fornia	Pac-ific States	TOTAL
1969*	172	**		219	191	276	178	61	1026			92	**			2215
1970	151	**		219	183	272	180	78	1034			88	38			2243
1971	161	**		226	183	335	198	92	1149			96	62			2502
1972	174	**		341	194	428	228	105	1343			109	86			3008
1973	236	**		371	269	558	294	127	1827			147	137			3966
1974	372	440		493	401	716	374	194	2045	107	**	171	182			5495
1975	361	411	137	460	439	790	535	284	2051	75	**	199	291			6033
1976	381	365	297	515	510	836	570	334	1799	187	**	244	402			6440
1977	230	295	535	529	638	859	658	352	1971	174	367	296	432			7336
1978	231	311	861	557	689	870	645	387	1816	193	380	309	498	90	60	7897

*Bottom of decline in student enrollment trend starting from the early 1960s.
**No figures available but college in operation.

a C.A. may double a D.C.s productivity, since the D.C. would be free to see patients versus taking X-rays and completing routine paperwork. Less than 10% of D.C.s have college-trained CA.s and less than half use C.A.s at all.

- o Willingness to work more weeks or hours About 6% of D.C.s would work more weeks per year if patients were available; and 28.5% would work more hours per week. If these 6% worked only 2 more weeks per year (as most indicated) this would add 293,000 patient visits per year to capacity. If 28.5% worked, let us say, one day or 8 hours more per week, this would add 6.6 million patient visits to the system.

Factors leading to decreased supply of D.C. services are:

- o Retirements or exits from the chiropractic labor force Currently 7.4% of active D.C.s plan to leave the labor force in the next five years. This will decrease the number of D.C.s available for patient care by 1,450 D.C.s and capacity for approximately 180,000 patient visits per week, or an estimated 8.9 million per year.

- o Desire to work less Over 31% of D.C.s plan to work fewer weeks per year and 10% plan to reduce the number of patient visits. This would also reduce access to D.C.s and their capacity to deliver service. If each of these D.C.s worked one week less, it would reduce the capacity by over 758,000 patient visits per year. Respondent D.C.s in larger cities and suburbs are more likely to reduce their work efforts than those in small towns and small cities.

These two negative factors would reduce the capacity of chiropractic to provide services by about 9.7 million patient visits per year, or 7.9% of total annual patient visits currently provided.

However, the positive factors related to supply of D.C.s and services appear to outweigh the negative. There is a shortfall of 2.8 million patient visits between D.C. attrition among existing D.C.s in practice over two years and the desire of other current D.C.s to expand their practices. However, at a conservative 50 patients a week for 50 work weeks a year, 13,000 new D.C.s could deliver 32.5 million added patient visits per year by the end of five years (65 million if 100 patient visits per week were to result). One overall concern may be where these new D.C.s will locate their practices. This and other issues of adequacy will be discussed in the next section.

SECTION 6

ADEQUACY OF SUPPLY OF DOCTORS OF CHIROPRACTIC TO OFFER SERVICES

In Sections 4 and 5 we have described the basic data regarding the services provided by D.C.s and the numbers of present and projected Doctors of Chiropractic. In this Section we explore those data further in an attempt to ascertain whether present and estimated future supplies of D.C.s are likely to be adequate over the next five years.

Before we start we should reiterate earlier explanations that we are not going to try to measure conditions of supply and demand in the classic sense. Rather, we are interested in placing our estimates of D.C. growth against our limited knowledge of the labor market's capacity to productively absorb that growth. In this way we intend to generate useful impressions of the adequacy of the supply of D.C.s over the next five years.

This Section is divided into three parts. First, we summarize again the information regarding the changing numbers of D.C.s and expected D.C. services. This is expanded through a brief analysis of the ability of the present number of D.C.s to expand their service offerings. Second, we explore a variety of ways to gain impressions about numbers of D.C.s which the system could ultimately absorb. Also, we look for existing "soft spots" in the present D.C. labor market and for indications that more can be readily absorbed. Finally, in the third part we draw limited conclusions from the evidence in the study.

Part 1 - Major Findings Regarding Supply of D.C. Services

Number of D.C.s

In the next five years the number of D.C.s practicing is expected to increase by between 35% and 48%. As noted in the Supply Section and based on existing enrollment figures, 11,000 new D.C.s are expected to enter the labor market in the next five years (a 39% increase over 23,000 now practicing). The responding colleges were even more optimistic indicating that they may graduate as many as 13,000 within the next five years (a 48% increase) given the present student demand for instruction. Beyond five years the projected increase in D.C.s may be even more. The nature of the chiropractic profession and pattern of people entering the profession is such that the 10,000 new D.C.s may be the start of a much larger increase in student demand for D.C. education in the future. The usual paths of entry are (1) for a D.C.'s family members and children to enter chiropractic college or (2) for former patients to be encouraged ty their D.C.s to enter the profession. With the the active D.C. population expanding, the demand for D.C. training to the profession is also very likely to expand.

Use of Auxiliary Personnel

Auxiliary personnel of various types are likely to be able to increase D.C. productivity and thus the supply of services. Over 80% of practicing respondents believed that chiropractic assistants could increase their productivity of seeing more patients; the average D.C. believed the number of added patients would be 4.4 per hour, almost equal to that of existing D.C.s. (This extraordinary claim and productivity for D.C.s could not be cross-checked because there are no other studies of chiropractic which analyze the added productivity from using chiropractic assistants).

The expanded use of Chiropractic Assistants (C.A.s) is therefore likely to significantly increase the service delivery capacity. The estimates by the D.C.s surveyed in this study which indicate that a single C.A. can almost double the service output of a single D.C. are remarkably high. This high level productivity can be expected to provide a strong stimulus for their expanded use. Given that only 40% of the D.C.s now use C.A.s it is possible for service output to expand by about 60% if all D.C.s used an assistant.

Along the same line of reasoning it is possible that the potential expansion will be even greater if D.C.s begin to use more than one C.A. in their practices. While more study is needed in the assistant area, the existing capacity for D.C. services can reasonably be expected to have potential expansion of as much as 60% depending on the extent of added use of C.A.s and could conceivably expand by another 48% due to the added numbers of trained D.C.s to at least double the present service capacity. Whether this expansion is actually going to be realized or not is too speculative to assert here. However it is clear that very substantial increases in capacity are possible and perhaps even reasonable to expect.

Expandability of D.C. Services

An additional element of service capacity is the expandability of the existing system. To estimate this aspect of D.C. practice we first determined the length of patient waiting as an index of tight supply. Then we asked D.C.s about their desire to expand their present practices.

Accepting Patients and Waiting Times for Appointments

The waiting times for appointments do not appear very long. Over 72% of D.C.s can see a new patient in one day's time. Less than .5% ask that patients wait more than a week. Further, 95.5% of active D.C.s are accepting new patients to their practices. (Few reasons were given for not accepting new patients; most frequent were semi-retired or those who said that they work enough now.)

Desired Service Expansion

Over 68% of practicing respondent D.C.s indicated they wanted more patient visits, seeking to increase their patient visits by an average of 99%. This indicates that the present number of D.C.s may be able and wish to expand services by roughly 68% by virtually doubling the practice size of this 68% of D.C.s. This expandability is, however, clouded somewhat by other D.C.'s survey responses. When active D.C.s were asked whether they would work more hours per week or more weeks per year to serve patients, less than 30% indicated they would work more hours per week, and less than 7% more weeks per year. This may mean that D.C. capacity is not as expandable as the expressed desire for more patients indicates. However, the added use of assistants and more intense use of time may be key variables.

Interpretation of Findings

The evidence in this study gives a very strong impression that the services of D.C.s are quite expandable now and that even larger increases in service delivery capacity are likely to develop over the next five years. In rough order of magnitude it is reasonable to think that the service capacity may more than double that of the present by 1985. Whether this increase in capacity will actually lead to twice the services delivered depends on many things including changes in the expected demand for D.C. services and in turn the ability of D.C.s to be absorbed in the labor market.

Part 2 - Ability of the Market to Absorb New D.C.s

Capacity of the D.C. Labor Market

Our approach to the issue of the numbers of D.C.s who could be readily absorbed in the labor market was two-pronged. First, we looked for signs which would indicate any "soft spots" or evidence that supply was already adequate. Second, we took a longer range view and developed several indicators of the likely use of D.C.s over the next five years.

We observed the existing labor market in this way:

- We searched for indications of saturation by observing indicators of practice size and absorption of new graduates in the high versus low D.C. density areas. We also studied the same issue regarding new graduate entry in general.

- We obtained judgements of practicing D.C.s regarding the current (1979) labor market conditions (this was refined to include geographic areas most close to saturation).

We developed several indicators of potential absorption over the next five years by:

- Estimates from differing density (D.C./population ratio) of D.C. use throughout the country in 1979.
- Estimates from expert opinion regarding the total numbers of D.C.s who could be successfully employed.
- Estimates from survey results of D.C.s regarding the needed numbers of persons to support one D.C.

Introductory Comments on Supply-Generated Demand

We could start this part of the report with the notion that demand/utilization of health care services are not independent of supply. More students of health manpower are suggesting that to some extent the supply of health professionals appears to create its own "demand" for services. Whether this phenomenon applies to chiropractic is unknown. However, it is interesting to note that over three times as many D.C.s believe that adding to (24.7%) versus subtracting from (7.5%) the numbers of D.C.s in their area will increase the demand for services in their own practices (Table 34).

To the extent that it does, the adequacy of supply is a moot question; it is adequate at whatever level the supply happens to be. However, we have noted several indications in this study that the demand may be finite and made estimates of the level of total expected use.

TABLE 34 - ADEQUACY

FACTORS SEEN BY PRACTICING D.C.S LEADING TO INCREASED DEMAND FOR THEIR SERVICES

	Percent of respondents mentioning this factor
Greater public education about chiropractic	85.4%
Increasing acceptance/prestige of the profession among other health professions	63.5%
Expansion in kinds of services reimbursable by third-party payors	61.0%
Increase in amount third-party payor will reimburse per service delivered	51.9%
A national definition of D.C. services or a more consistent scope of practice from state to state	37.3%
Wider scope of practice for chiropractic (change in state laws)	27.5%
Increased number of D.C.s practicing in your area	24.7%
Decreased number of D.C.s practicing in your area	7.5%

N=1488

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Indications of Adequacy of Supply

D.C. Density and Practice Size

One might assert that if D.C.s are reaching the saturation point in some regions of the country that D.C.s in the regions with higher concentrations of D.C.s will be more likely to have smaller practices than the national average. In Table 35 one can see that the Western and North Central Regions, which have the highest D.C. to population ratios, also have the largest practices as measured by practice revenues, average numbers of patients, and weekly patient visits.

While this pattern does not always hold universally (as can be seen by comparing the Western and North Central Regions, in which the Western Region has a higher number of D.C.s per 100,000 but lower number of patient visits per D.C.) it provides a single albeit tentative indication that the high density areas have not reached a saturation level of D.C. use. More D.C.s may be productively absorbed even in the high density use labor markets.

D.C. Density and Location of New Graduates

New graduates might be expected to gravitate away from high D.C. density areas if the market there was reaching its limit for D.C. use. However, the data show that this is not the case.

Over the last two years the greatest proportion of recent graduates has entered practice in the subregions of the country with the highest densities of D.C.s (evidence obtained from the graduate survey) and these were readily absorbed into the labor market. This

TABLE 35 - ADEQUACY

NATIONAL AND REGIONAL D.C. POPULATION RATIOS COMPARED WITH MEASURES OF SERVICE UTILIZATION

		REGIONAL AVERAGES			
	National Average	Western	North Eastern	Southern	North Central
DC Population Ratio	10.5	14.0	8.9	8.0	11.2
Patient Visits per week	124.7	126.3	110.7	118.2	138.1
Patients per week	86.6	95.8	74.8	67.7	103.5
Gross Revenue/Income Category	40-49,000	40-49,000	30-39,000	30-39,000	40-49,000

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suggests that even in the more densely served areas the point of saturation has not yet been reached.

Ease of Entering a Practice

The ease of setting up practice for a new graduate is another crude indicator of saturation of D.C. services. The less demand there is for D.C. services, the greater difficulty to enter practice and the lower the economic rewards may be.

The indications are that new graduates are as yet readily absorbed into the labor market. Over 90% of actively practicing recent graduates pass their license exams and enter active practice within 12 months of graduation. Nearly half of the recent graduates (49.8%) believed it more easy than difficult to enter active practice, while less than 24% found it difficult.

The ready absorbability of new graduates is reinforced by their earnings data. Recent graduates appear to be able to quickly increase practice income; nearly 10% generate over $75,000 gross practice revenue per year within three years of graduation; 16.9% - $50,000 to $74,999; and 20.1% - $20,000 to $49,999. (Those grossing less than $20,000 usually have been practicing less than one year.) Colleges expect D.C.s to make between $12,000 and $24,000 as a starting salary in practice.

D.C. Opinion on Labor Market Conditions

We rounded out the subjective evidence on existing (1979) labor market conditions with opinions from D.C.s regarding conditions in their areas. The preponderance of views is that more D.C.s can be employed throughout this country. Evidence in Table 36 shows that over 79%

TABLE 36 - ADEQUACY

DC'S OPINION ABOUT WHETHER MORE DC'S CAN BE EMPLOYED IN THE STATE WHERE THEIR PRACTICES ARE LOCATED

OPINION	PRACTICING DC'S	RECENT GRADUATES WHO ARE PRACTICING	RECENT GRADUATES WHO WERE BUT ARE NOT NOW IN PRACTICE	RECENT GRADUATES PLANNING TO ENTER PRACTICE
YES, MORE CAN BE EMPLOYED	79.2%	79.0%	61.9%	75.9%
NO, PRESENT NUMBER IS ADEQUATE	12.7	8.8	14.3	8.5
NO, PRESENTLY TOO MANY PRACTICING	2.0	2.1	9.5	3.2
DON'T KNOW	6.1	10.1	14.3	12.3
	100%	100%	100%	100%
N =	1349	1725	21	316

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of practicing D.C.s and recent graduates believe that more D.C.s are needed in the states where they are practicing. Data in Table 37 shows that over 60% of recent graduates and practicing D.C.s believe more D.C.s can be added in the county where they are practicing. (Notice that the perceived need for more D.C.s is consistently higher for D.C.s located outside the small and large towns when the labor market question was removed to the county level. This is a rough indication that in some low populated areas the number of present D.C.s may be adequate. Fully 40% of all D.C.s work in these smaller communities of under 25,000 (reported in Section 5) so it is not surprising to find possible "soft spots" in those areas).

What Are Areas Where They Should Not Be Added

D.C.s practicing in small towns and large towns tend to feel more strongly that there are enough other D.C.s in their areas (See Tables 38 and 39). Most practicing D.C.s who feel that more D.C.s can be added to their areas are from large cities and their suburbs. These findings contrast with those from studies of other professions, i.e., dentists, surgeons, etc. which have found a surplus of personnel in major cities.

Responding D.C.s from areas where they believe that no more D.C.s should be added also are of the opinion that people in these areas are generally less educated about chiropractic health care. This would tend to support the D.C.s' belief noted in Section 4 and Table 34 of this Section that the major factor causing an increase in demand for services is greater public knowledge about chiropractic.

TABLE 37 - ADEQUACY

DC'S OPINION ABOUT WHETHER MORE DC'S CAN BE EMPLOYED IN THE COUNTY WHERE THEIR PRACTICES ARE LOCATED

OPINION	PRACTICING DC'S	RECENT GRADUATES WHO ARE PRACTICING	RECENT GRADUATES WHO WERE BUT ARE NOT NOW IN PRACTICE	RECENT GRADUATES PLANNING TO ENTER PRACTICE
YES, MORE CAN BE EMPLOYED	65.3	66.8	57.1	67.0
NO, PRESENT NUMBER IS ADEQUATE	25.4	18.3	14.3	10.4
NO, PRESENTLY TOO MANY PRACTICING	3.5	3.9	4.8	5.4
DON'T KNOW	5.9	11.0	23.8	16.8
	100%	100%	100%	100%
N =	1257	1598	21	279

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TABLE 38 - ADEQUACY

DO PRACTICING DC'S FEEL THAT MORE DC'S CAN BE ADDED IN THE STATE WHERE THEY ARE PRACTICING

OPINION	SMALL TOWN LESS THAN 2,500	LARGE TOWN 2,500 TO 24,999	SMALL CITY 25,00 TO 99,999	LARGE CITY OVER 100,000	SUBURB	OVERALL PERCENT-AGES
YES, MORE CAN BE ADDED	7.4%[1] 59.9 [2]	32.7% 81.2	25.8% 81.8	23.6% 79.9	10.5% 85.8	79.4%
NO, ADEQUATE NUMBER NOW	20.1 25.6	28.0 10.9	22.9 11.4	27.6 14.6	1.5 1.9	12.5
NO, TOO MANY NOW	4.4 .9	13.6 .9	19.5 1.6	39.0 3.4	23.5 4.9	2.0
DON'T KNOW	21.7 13.6	36.7 7.0	21.5 5.2	8.2 2.1	11.9 7.5	6.1
	9.8	32.0	25.1	23.5	9.7	100.0

RAW CHI SQUARE = 76.32089 WITH 12 DEGREES OF FREEDOM. SIGNIFICANCE = .0000

NUMBER OBSERVATIONS = 1397

[1] TOP ROW NUMBER IN EACH CELL IS ROW PERCENT AND TOTALS 100% ACROSS TABLE.
[2] SECOND ROW NUMBER IS COLUMN PERCENT AND TOTALS 100% DOWN TABLE.

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TABLE 39 - ADEQUACY

DO PRACTICING DC'S FEEL THAT MORE DC'S CAN BE ADDED IN THE COUNTY WHERE THEY ARE PRACTICING

OPINION	SMALL TOWN LESS THAN 2,500	LARGE TOWN 2,500 TO 24,999	SMALL CITY 25,00 TO 99,999	LARGE CITY OVER 100,000	SUBURB	OVERALL PERCENTAGES
YES, MORE CAN BE ADDED	6.2%[1] 39.3[2]	28.4% 54.8	28.2% 75.2	27.1% 71.8	10.0% 76.9	64.1%
NO, ADEQUATE NUMBER NOW	18.2 48.3	46.5 37.6	15.4 17.3	16.2 18.0	3.7 12.0	26.9
NO, TOO MANY NOW	5.4 1.8	23.4 2.4	12.0 1.7	47.8 6.6	11.5 4.6	3.3
DON'T KNOW	19.1 10.6	30.6 5.2	25.2 5.9	15.4 3.6	9.6 6.5	5.6
	10.2	33.2	24.1	24.2	8.3	100.0

RAW CHI SQUARE = 123.75213 WITH 12 DEGREES OF FREEDON. SIGNIFICANCE = .0000

NUMBER OBSERVATIONS = 1299

[1] TOP ROW NUMBER IN EACH CELL IS ROW PERCENT AND TOTALS 100% ACROSS TABLE.
[2] SECOND ROW NUMBER IS COLUMN PERCENT AND TOTALS 100% DOWN TABLE.

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Opinions of D.C. Colleges on Labor Market

We rounded off our judgemental assessment of the existing (1979) labor market by obtaining the opinions of those in D.C. colleges. Overall, the colleges indicate that the labor market faced by their graduates is good to excellent in the nation, the regions they serve, and the states in which they operate (See Table 40). However, the job markets in the states where the colleges are located do not appear as strong as those in other areas. This may indicate some level of existing saturation of local labor markets near the colleges. In fact, two colleges indicated that in their own metropolitan areas there were possibly too many D.C.s. Some graduates appear to locate near the schools and in turn these areas appear to be already near the saturation level.

Interpretation of Findings

There are few if any indications that the existing supply of D.C.s has saturated the labor market. The several indicators we developed in this study all point generally toward the ready absorption of more D.C.s. The only major concern is the high level of desire for more patients among the existing supply of D.C.s. How long this generally positive picture will continue is the next topic of this report.

Capacity for Use of More D.C.s in Future

Even though present indications are that D.C.s are readily absorbed in the market it is useful to attempt to estimate how long that might continue. This is especially important given the rapid increase in D.C.s and use of C.A.s expected over the next five years. Estimates of total potential use of D.C.s given current population and other conditions included estimates from

TABLE 40 - ADEQUACY

COLLEGE ADMINISTRATOR IMPRESSIONS ABOUT THE MARKET FOR DC GRADUATES IN DEFINED AREAS

	MARKET AREA		
MARKET CONDITIONS	STATE WHERE COLLEGE IS LOCATED	REGION SERVED BY COLLEGE	NATION AS A WHOLE
EXCELLENT	5	8	7
GOOD	4	2	3
AVERAGE	1	-	
FAIR	-	-	
POOR	-	-	
TOTAL	10	10	10

differing density ratios, expert opinion and other survey results.

Estimates from D.C. Population Ratios

The variability in D.C. population ratios remains very wide among states, ranging from 1.8 in Virginia to 23.2 in Iowa. It is also large among regions, from 8.0 in the Southern Region to 14.0 in the Western Region.

Some of the variations may be the result of differences in states' past legal environment for chiropractic. For example, while the number of D.C.s per 100,000 population in Massachusetts is 4.9, in its neighboring states of New Hampshire and Vermont it is 17.8 and 11.6 respectively. This may be the result of D.C.s being licensed to practice chiropractic in New Hampshire and Vermont before Massachusetts passed its licensing statute.

Nonetheless, if one argues that there are no intrinsic differences across regions in their "need" for chiropractic services, the large differences in density of D.C.s indicates a very large potential demand in the lower density areas. If people in every area used D.C.s as do those in Iowa the need for more chiropractors is sizeable with a total requirement of roughly 51,000.* But what the actual need or pent up demand for D.C. services actually is, is beyond the scope of this study. All we can do here is speculate that the potential for more use of D.C.s could be as high as a total of 51,000 if all areas of the country had the same higher density across regions.

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*220,000,000 population at 23.2/100,000.

Opinions of a Panel of Experts

One traditional albeit subjective method of judging the total numbers of useful supply is to develop an expert consensus regarding "appropriate" profession/population ratios. As one of several methods of such judgement we asked the chiropractic advisory panel of this study for judgements regarding the D.C.population ratios. Concern was raised early that these judgements might be nothing more than wishful thinking and could be grossly misleading given the unavailability of alternative standards for comparison. Therefore, we asked the question in a specific form, "Estimate the number of D.C.s which could be readily employed. . . ."

Using a modified Delphi technique, the panel concensus was made of estimations of the D.C. population ratios under three conditions: today's conditions affecting D.C. use, the most reasonably optimistic conditions and the most pessimistic conditions. The results are shown in Table 8. The average estimate for *today's conditions* was 14.1 D.C.s per 100,000 or a total of 28,200 D.C.s to satisfy demand given existing market conditions (see last row of fourth column). The estimate for the *most optimistic chiropractic environmental conditions* was 53,000 D.C.s, and the *most pessimistic* was 18,000.

Survey Estimates of Total Need of Chiropractors

We used yet another judgemental process to estimate the number of D.C.s who could be readily absorbed in the present labor market. Practicing D.Cs were asked in the service provider survey how many people (what population) would be required to support a D.C. in an average practice. The results of this process to estimate total

TABLE 41 - ADEQUACY

CHIROPRACTIC ADVISORY GROUP
ESTIMATES OF CHIROPRACTOR/100,000 POPULATION RATIOS UNDER CERTAIN CONDITIONS

	First Estimate			Second Estimate
	Today's Conditions	Optimistic Conditions	Pessimistic Conditions	Today's Conditions
RANGE:				
High	24	64	16	22
Low	8	10	4	8
An Average (including high & low)	13.3	29.1	9.5	14.4
An Average (excluding high & low)	12.3	26.5	9.3	14.1

The D.C. population ratio assumed to exist at the time of this effort in December 1977 was 8 chiropractors per 100,000.

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D.C. requirements provide results which appear at first glance strange, ranging from a low of about 19,600 -- over 2,000 fewer than actually practice today - to about 36,000. These are strikingly lower estimates than the others and could be explained by the fact that many D.C.s appear to desire such large increases in their practice size. The answer to our survey estimates may reflect D.C. adequacy given more full utilization of D.C.s than currently exists.

Interpretation of Findings

Study estimates of the total number of D.C.s needed to saturate the labor market ranged from roughly 20,000 to roughly 50,000. Our sense of the evidence suggests that a most realistic upper bound figure for total requirements for D.C.s given a 1979 environment for D.C.s use is in the 50,000 range with a most reasonable estimate in the 28,000 to 35,000 range.

Part 3 - Adequacy of D.C. Supply

Evidence Juxtaposed with Estimation of Supply

When one places the evidence of supply juxtaposed with that of estimated D.C. requirements it appears that unless conditions change substantially the projected requirements may well be met within the next six to eight years. The present supply of D.C.s is about 23,000 and is projected to increase at a rate of about 2,200 per year to between 32,000 and 34,000 within five years. With the expected increased use of C.A.s this figure could effectively increase by considerably more given the extraordinarily high C.A. productivity rate and increase in potential use rate.

If this is compared to the upper figure of our most reasonable estimated 1979 requirements for D.C.s of 35,000 (range from 28,000 to 35,000) and if that number is inflated an optimistic growth factor of say 4%* for need expansion, the D.C. requirement in 1985 is roughly 42,600, compared to 34,000 D.C.s plus the C.A. capacity expected to be available at that time. How fast supply and expected requirements will change beyond that time is unclear, but it appears that the two may be getting very close in the mid 1980s. The estimates in this study are too gross for any more precision regarding the adequacy issue.

Possible Changes in the D.C. Environment

We would be remiss if we did not conclude this section with a few ideas regarding a changing D.C. environment which could totally turn around our adequacy perceptions.

The factor mentioned most frequently by colleges, practicing D.C.s, and experts in the profession as increasing the request for chiropractic services is greater public education about chiropractic. In Table 34 we present the factors respondent D.C.s believe would likely result in an increase in demand for their services over the next five years. The second and third factors most frequently mentioned are increased professional acceptance among health professions and expanded third-party reimbursement mentioned by over 60% of respondents.

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*Population growth is estimated at 1% or less per year for 1980 to 1985 by the Department of Commerce.

Trends in these factors are:

- D.C.s are discussing areas of mutual interest with other health professions, which in the future may lead to greater understanding and professional acceptance.
- Third party coverage of D.C. costs is believed to be expanding -- witness recent inclusion of chiropractic care in Medicare and in group health insurance by underwriters such as Prudential and Equitable.
- More D.C.s are entering the labor market, and this will increase public awareness in the areas they will enter and perhaps the nation as a whole.

Positive trends in these three important factors may well lead to increased use of chiropractic services. Nevertheless, a key issue, noted above, remains the large increase in supply of D.C.s expected to occur in the next five years and how these new Doctors of Chiropractic will be absorbed in the health care delivery system.

SECTION 7

CHARGES FOR CHIROPRACTIC SERVICES

This section contains five divisions: (1) a summary of the major findings from our investigation of charges for chiropractic services, (2) an overview of the research completed regarding costs of services, (3) description of the data sources, (4) detailed discussion of the results of the study and (5) projections as to how charges will change in the future.

Summary of Major Findings

While many findings are significant, we selected these seven as being most interesting and important:

- About $1.3 billion is spent annually on chiropractic care in the United States. About $800 to $850 million is spent on patient examination and treatment, and $350 to $400 million on X-rays for analysis.

- The average fees for the two most frequently offered services are:
  - $13.69 for an office visit for a spinal adjustment and
  - $15.65 for an office visit for a spinal adjustment and one physical therapy treatment.

- New patients pay an average of $22.79 for their first visits (not including X-ray and laboratory services).

- Over the last five years, 1974 to 1979, most service fees evaluated have increased at a rate slightly less than that of the medical portion of the consumer price index (55%). Only three of the eleven service charges rose faster: urinalysis, 61% (a charge over which many D.C.s have little control because of outside lab fees); routine examinations of new patients, 65%; and comprehensive examinations of patients with extensive injuries or multiple complaints, 71%.

- In the last year, 1978 to 1979, the fees have increased more rapidly on the average than those in the medical portion of the the consumer price index (14 to 15% versus 9.8%). This is true for every service about which we gathered data, even though substantial proportions of respondents did not raise fees at all for individual services (over 60% for some services).

- There is some significant variation in service fees in different areas of the country. In general, the lowest fees are in the states of the North Central Census Regions; and the highest fees are in the Western Census Regions. Generally, fees for chiropractic services (except X-ray and laboratory charges) are 20% to 25% less expensive in the North Central states than in the nation as a whole. This may be due to the fact that there are more rural practices in that region.

- Increases in patient fees are likely to parallel those for medical costs in general as reported by the medical component of the consumer price index.

Overview of Research on Charges for Chiropractic Services

The need to investigate the cost of D.C. services arises from two sources: (1) no national study has ever been completed regarding charges for various types of chiropractic services and (2) expanding third party reimbursement for chiropractic care requires better information about these service fees. Since 1974, D.C.

services have been included in Medicare, Medicaid, Government Employees Insurance, and other federal health care programs. They are also contained in more state third party reimbursement coverage for Workers Compensation. The inclusion of D.C. services into other employee health coverage progarams is continuing to expand. It is therefore important to analyze the cost of D.C. services and see what impact its inclusion has upon these programs.

Questions to Be Answered About Service Fees

In analyzing data regarding service fees, the research sought to answer five questions regarding service fees:

- What are the fees now charged for the most frequently offered chiropractic services?
- Do these fees vary from region to region across the nation?
- What factors might lead to higher or lower fees?
- How have these fees changed over time?
- What projections can be made about future charges for chiropractic services?

Data Sources

The survey of practitioners was the main data gathering instrument. General survey procedures were described in Section 2. The issues related to service costs are discussed here.

Selection of Services About Which to Gather Data

One task of our Advisory Group was to select a group of services about which to request service fee information. Four criteria were used in selecting these services. The services must be:

1. The most widely offered by the profession
2. Mutually exclusive so answers applied to only one service category

3. Clearly described in the way the service is offered
4. Offered for at least five years

Using these criteria, eleven services were selected. The list was intended to be brief but comprehensive to include all types of practices and billing methods.

Eleven Services About Which Charge Information Was Collected

The eleven services are organized in four groups for presentation. These are stated below as asked in the questionnaires:

X-Ray Services

1. Full spine (14 X 36 A Panel lateral)
2. Cervicals (limited, three views)
3. Lumbosacral (limited A Panel lateral)

Laboratory Services and Tests

4. Urinalysis (including microscopic)
5. Complete blood count

Physical Examinations

6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)
7. Routine examination of an established patient for a new illness
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)

Office Visits for Follow-Up Care

9. Office visit/chiropractic adjustment(s)
10. Office visit/single physical therapy technique in conjunction with chiro-

practic adjustment

11. Each additional 15 minutes of doctor's time required over and above routine treatment

Time Series Data Requested

In gathering data on changes in fees during the last five years, it was decided during pretests to gather data on only three years -- 1974, 1978, and 1979. Requesting data for all five years was found to be too time consuming for the respondent. Thus, to keep overall and item response as high as possible, data on only three years was requested.

College Clinic Service Fees

Schools are another informational resource. Clinic directors were asked what their clinic charges have been over the last five years for the same services. From these data one can look at charges and the rate of increase, and compare them with those in private practice as a cross-check on charges.

Secondary Data Only of Limited Value

Secondary data from Medicare carriers, state association presidents, and past surveys can provide another source of information. For Medicare carrier data, 42 of 50 states responded to our request for data about charges. However, problems arise when using this data to analyze costs of D.C. services. Not all of the states can provide five years of information. These carriers cover D.C.s' charges for only spinal adjustments; X-rays and other services are not included. Consequently costs of a patient visit will be understated. Past surveys can provide additional information but are not reported here. Other chiropractic surveys used in Maine, Utah, and Connecticut were helpful but dated and did not ask for price information about the same services. Data from state chiropractic association presidents about relative value schedules (used in the past to suggest reasonable fees for D.C. services) is not attainable because of recent legal rulings barring the practice of using such schedules.

Fees Now Charged for D.C. Services

Column 1 of Table 42 shows the average fees charged for the 11 services described above. The most expensive chiropractic services are X-rays. The most expensive examination service is a comprehensive exam for someone with extensive injuries or multiple complaints ($31.37). The least expensive services are laboratory services, urinalysis ($6.08) and a complete blood count ($13.18). Only 36.1% of all D.C.s offer urinalysis, and over 60% of these use outside laboratories for analysis of results. Less than 30% (28.7%) offer complete blood counts, and 89.5% of these use outside laboratories for analysis.

The costs of the most frequently offered services are $13.69 for an office visit for chiropractic adjustment(s) (number 9) and $15.35 for an office visit for an ajustment with one physical therapy treatment. Spinal adjustments are given during nearly all patient visits as shown in Section 4. Office visits for an adjustment with a physical therapy treatment is offered by over 70% of respondents. The types of physiotherapy treatments were described in Section 4. Less than 30% of D.C.s charge for extra time spent with patients, but for those that do the average fee is about $9.50 for each 15 additional minutes.

The average fees for examinations (excluding X-rays) range from $16.06 for an return patient with a new illness to $31.37 for the comprehensive exam of a patient with extensive injuries, etc. New patients pay

TABLE 42 - COST OF SERVICES

AVERAGE PRICES CHARGED FOR CHIROPRACTIC SERVICES 1979

		Regional Averages			
Services	National Average	West	North-east	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	50.18	56.96	42.50	46.22	50.16
2. Cervicals -- limited (3 views)	29.74	31.05	28.70	28.37	28.82
3. Lumbosacral -- limited (AP & Lat)	31.64	33.00	31.00	30.92	30.72
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	6.08	6.33	6.36	5.57	6.47
5. Complete blood count (CBC)	13.18	12.65	12.73	14.83	13.02
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	22.79	27.97	21.76	21.10	18.06
7. Routine examination examination of an established patient for a new illness	16.06	19.68	14.93	14.76	13.15
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	31.37	42.03	27.11	30.87	23.99
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	13.69	15.30	16.64	12.16	11.02
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	15.35	16.82	17.53	14.40	12.79
11. Each additional 15 minutes of doctor's time required over and above routine treatment	9.47	9.64	10.12	9.78	9.43

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an average of $22.79 for their first examination (excluding laboratory and X-ray fees). The total fee for a typical examination might include an X-ray charge for limited area views -- lumbosacral ($31.64) or cervicals ($29.74) -- and the examination fees. Laboratory services are not offered by a majority of D.C.s. This would make fees range from $45.80 to $63.01 for various combinations of X-rays and exams. The usual fee for new patients would be about $52 to $54.

The reader should also note the tremendous range of fees found in the research. For every service there were D.C.s who responded that they did not charge for that service. The widest range in fees was from $0 to $1600 for a spinal adjustment. The very high fees are not widely charged; only 1% charged over $23. Advisory group members who are D.C.s believe these are most likely fees from a case basis billing which is a practice frowned on by the chiropractic professional associations and insurance companies. Case basis fees are charged by DC.s (and other health professionals, including some dentists and physicians) for all treatments to correct a patient's condition of illness.[1] Table 43 also shows the median fees for D.C. services. In most cases they are near the means.

[1] D.C. professional associations and insurance companies have grievance procedures organized which may be able to help patients recover some excess fees.

TABLE 43 - COST OF SERVICES

MEDIAN PRICES CHARGED FOR CHIROPRACTIC SERVICES 1979

Services	National Average	Regional Averages West	Northeast	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	50.00	59.67	40.21	44.95	49.58
2. Cervicals -- limited (3 views)	30.00	30.02	29.66	29.72	29.61
3. Lumbosacral -- limited (AP & Lat)	30.00	30.24	30.21	30.10	30.09
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	5.00	5.38	5.12	5.07	5.56
5. Complete blood count (CBC)	10.00	9.98	9.60	9.70	9.89
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	20.00	25.21	19.96	19.79	15.17
7. Routine examination examination of an established patient for a new illness	15.00	18.35	14.56	12.46	10.47
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	25.00	39.81	24.93	25.06	20.14
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	12.00	14.24	11.73	11.71	10.07
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	15.00	16.17	14.83	14.63	12.47
11. Each additional 15 minutes of doctor's time required over and above routine treatment	10.00	6.48	9.97	9.73	9.65

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Variation of D.C. Service Fees Across the Nation

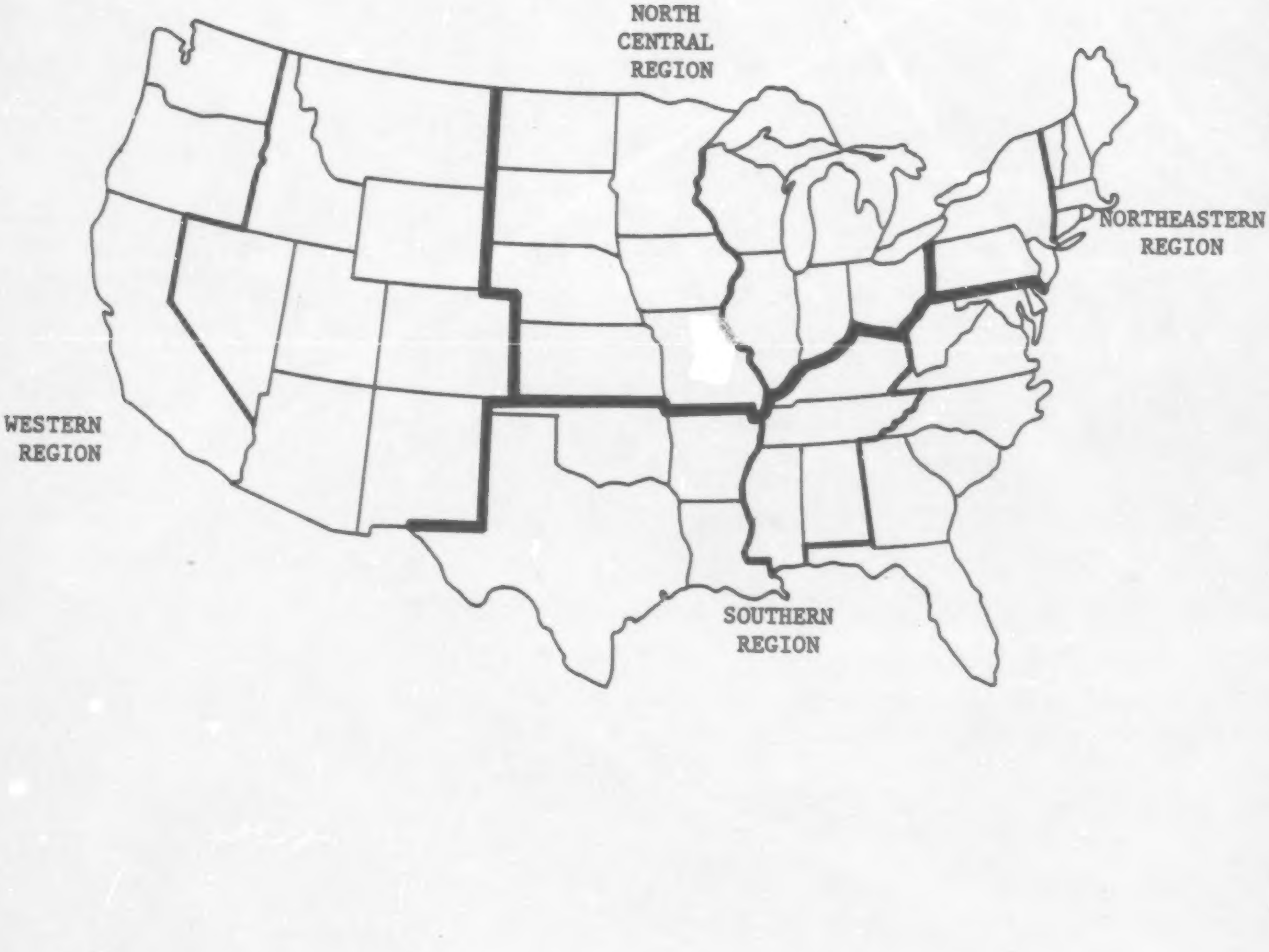
The survey finds significant differences between D. C. service charges in the four major census regions (See map on the next page). Overall the lowest fees for patient exams and treatments are found in the North Central Regions (See Tables 42 and 43). The highest fees for patient examinations are found in the Western Region; the highest fees for office visits for follow-up care in the Northeast. For X-rays, the highest fees are also in the Western Region; the lowest fees for X-rays are found equally divided among the other three regions, as one can see in Table 42. Laboratory fees in the regions are not significantly different from one another.

Factors Which May Affect Service Charges

Three factors seem to have an effect on service charges. These are the number of patient visits, tenure in practice, and location of practice. The number of patient visits per week appears to be positively correlated with service fees (.4003 correlation coefficient at .001 significance). This means the higher the number of patient visits a D.C. has in a week, the higher his fees will be per visit.

Tenure in practice appears to be related only to X-ray fees. The correlation is negative and significant. This can be explained by the rapidly rising cost of X-ray equipment for D.C.s now entering practices. X-ray equipment that previously cost $4,000 to $7000 now costs over $14,000. D.C.s whose equipment was purchased or leased several years ago can charge less for the same X-ray services. This may be reflected in the regional difference in X-ray fees. The average D.C. practicing in the Western Region has been in practice fewer years than those in other regions. Further, more recent graduates are entering that region than others, as noted in

MAJOR CENSUS REGIONS


NORTH
CENTRAL
REGION
NORTHEASTERN
REGION
WESTERN
REGION
SOUTHERN
REGION

Section 5. One would expect their X-ray fees to be higher, and they are.

Location of practice appears to be a factor in that D.C.s in smaller towns tend to charge lower fees. Over 70% of D.C.s in smaller towns charge less than the median charge for a spinal adjustment. In fact, in the North Central Region where more D.C.s practice in rural settings (under 25,000) the overall charges are lower than those in other regions as noted above.

Other factors which one might expect to affect charges for D.C. services do not. These include the number of D.C.s practicing in a county, the number of spinal adjustments given in a week, the number of different patients seen in a week, and the proportion of fees received from third party payers.

How Have These Fees Changed Over Time[1]

The fees for D.C. services have increased by less than the medical portion of the Consumer Price Index (CPI) over the last five years. The medical portion of the CPI has risen by 58%. Only three D.C. services have risen faster -- urinalysis (over which D.C.s who used outside laboratories have no control), examinations of new patients, and comprehensive examinations. (See Table 44.[2]

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[1] Tables showing average prices for 1978 and 1974 appear at the end of the chapter (Tables 48 and 49).

[2] Average price increases were calculated from responses for each respondent so that the most accurate data could be developed for five and one-year time periods. Naturally, these may differ slightly from calculations based on averages.

TABLE 44 - COST OF SERVICES

PERCENT CHANGE IN CHIROPRACTIC SERVICE CHARGES IN LAST FIVE YEARS (1974-1979) SHOWN BY 1979 FEES AS A PERCENT OF 1974 FEES*

Services	National Average	Regional Averages West	Northeast	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	41.86%	41.34%	34.81%	51.33%	33.87%
2. Cervicals — limited (3 views)	45.89	43.72	48.00	49.99	39.31
3. Lumbosacral — limited (AP & Lat)	40.23	40.01	41.38	40.40	33.95
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	61.43	69.60	63.38	57.36	51.22
5. Complete blood count (CBC)	54.28	43.24	61.85	61.98	45.66
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	65.32	59.13	61.87	77.26	62.00
7. Routine examination examination of an established patient for a new illness	53.91	52.14	54.09	60.88	52.43
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	71.10	57.30	64.30	79.50	71.18
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	49.83	50.56	45.64	52.90	46.89
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	55.89	52.02	56.45	55.52	52.32
11. Each additional 15 minutes of doctor's time required over and above routine treatment	54.98	79.84	60.86	72.91	32.38

Over five years the smallest increases are in X-ray service fees. The highest increases are in patient examination fees (See Table 44). There appears to be no pattern to regional price increases except that the Southern Region has had the largest price increases in X-rays and patient examinations (See column 3 in Table 3).

In the last year, nearly all average charges have risen more rapidly than medical costs in general. Medical costs have risen 9%, from August 1978 to August 1979. In looking at Table 45, one can see that ten of eleven chiropractic service fees have increased more rapidly. Once again the most rapidly rising fees for X-rays and patient examinations are in the Southern Regions. The Western Region has the smallest increases in X-ray fees; however it has the largest increases in service charges for office visit/follow-up treatments.

Nevertheless, not all D.C.s have been increasing their fees over the past year (1978-1979). Table 46 shows that the median increase has been 0% for fees in 8 of 11 categories of service. This means that a substantial percentage of D.C.s have not raised their fees at all for individual services, (between 35% and 61% as shown in column 3 of Table 46). However among the most widely offered spinal adjustment services (service numbers 9 and 10 in Table 46) 60% to 65% of D.C.s have raised fees. Over 50% have raised fees for new patients.

Service charge increases have also varied among D.C.s over five years as shown in Table 47. For eight services, over 10% of respondents have not raised their fees in five years. Further, for several services the median charge increase (in column 2) is much lower than the average increase.

TABLE 45 - COST OF SERVICES

PERCENT CHANGE IN CHIROPRACTIC SERVICE CHARGES IN LAST YEAR SHOWN BY 1979 FEES AS A PERCENT OF 1978 FEES*

		Regional Averages			
Services	National Average	West	North-east	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	09.51%	05.83%	07.31%	13.65%	06.99%
2. Cervicals -- limited (3 views)	11.55	06.89	12.46	14.81	08.86
3. Lumbosacral -- limited (AP & Lat)	10.04	06.96	10.10	12.76	08.31
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	16.03	09.47	15.07	14.29	12.30
5. Complete blood count (CBC)	13.09	14.91	21.41	12.61	07.40
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	19.66	17.68	17.09	23.27	16.11
7. Routine examination examination of an established patient for a new illness	14.50	14.85	13.21	15.04	12.30
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	20.41	16.42	18.40	21.23	18.06
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	13.63	15.75	12.24	14.88	11.63
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	15.54	19.91	14.21	16.72	12.42
11. Each additional 15 minutes of doctor's time required over and above routine treatment	14.40	31.56	09.83	17.33	02.31

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TABLE 46 - COST OF SERVICES

AVERAGE AND MEDIAN FEE CHANGES - ONE YEAR*

SERVICES	AVERAGE	MEDIAN PRICE CHANGE IN ONE YEAR	PERCENT NOT CHANGING FEE IN ONE YEAR
X-RAY SERVICES			
1. Full Spine (14 X 36 AP & Lat)	09.51%	0%	55.4%
2. Cervicals -- limited (3 views)	11.55%	0%	56.7%
3. Lumbosacral -- limited (AP & Lat)	10.04%	0%	57.8%
LABORATORY SERVICES/TESTS			
4. Urinalysis (including microscopic)	16.03%	0%	61.7%
5. Complete blood count (CBC)	13.09%	0%	56.7%
PHYSICAL EXAMINATION			
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	19.66%	110%	42.2%
7. Routine examination examination of an established patient for a new illness	14.50%	0%	55.1%
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	20.41%	0%	49.3%
OFFICE VISITS FOR FOLLOW-UP CARE			
9. Office visit/chiropractic adjustment(s)	13.63%	111%	35.0%
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	15.54%	110%	39.2%
11. Each additional 15 minutes of doctor's time required over and above routine treatment	14.40%	0%	52.3%

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TABLE 47 - COST OF SERVICES

AVERAGE AND MEDIAN FEE CHANGES - FIVE YEARS*

SERVICES	AVERAGE	MEDIAN PRICE CHANGE IN FIVE YEARS	PERCENT NOT CHANGING IN FIVE YEARS
X-RAY SERVICES			
1. Full Spine (14 X 36 AP & Lat)	41.86%	13%	10.2%
2. Cervicals -- limited (3 views)	45.89%	40%	13.0%
3. Lumbosacral -- limited (AP & Lat)	40.23%	13%	13.6%
LABORATORY SERVICES/TESTS			
4. Urinalysis (including microscopic)	61.43%	50%	23.5%
5. Complete blood count (CBC)	54.28%	50%	13.2%
PHYSICAL EXAMINATION			
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	65.32%	50%	9.6%
7. Routine examination examination of an established patient for a new illness	53.91%	50%	15.3%
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	71.10%	51%	12.3%
OFFICE VISITS FOR FOLLOW-UP CARE			
9. Office visit/chiropractic adjustment(s)	49.83%	48%	2.7%
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	55.89%	50%	5.6%
11. Each additional 15 minutes of doctor's time required over and above routine treatment	54.98%	45%	15.3%

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What Projections Can be Made About D.C. Service Charges

In general, one can say that change in chiropractic services charges over the long term (5 years) appear to parallel those for other medical services as summarized by the Consumer Price Index. It is true that last year's increase in most services was significantly higher than the rate of increase for overall medical services. However, over five years the rate of change in D.C. service charges has been somewhat slower, as noted above.

There appears to be no forseeable slowdown in the increase in service fees since the increasing overhead costs of starting and running a practice are related to rising equipment and personnel costs which are strongly induced by inflation. Further, given the current prime rate of 15½% and the need for many D.C.s to borrow and/or lease to start, maintain and expand their practices, one would expect continued service charge increases, especially in newer practices. Nevertheless, to the extent that federal policies can control inflation, fee increases for D.C. services would probably also slow down to a more acceptable rate.

TABLE 48 - COST OF SERVICES

AVERAGE PRICES CHARGED FOR CHIROPRACTIC SERVICES 1978

Services	National Average	Regional Averages			
		West	Northeast	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	46.30	54.00	40.73	42.28	43.81
2. Cervicals -- limited (3 views)	27.28	30.17	26.36	25.63	26.39
3. Lumbosacral -- limited (AP & Lat)	29.33	31.28	29.20	28.38	28.37
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	5.81	7.49	5.62	4.88	5.61
5. Complete blood count (CBC)	13.04	9.50	12.66	13.08	17.66
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	19.58	24.32	18.42	17.54	15.73
7. Routine examination examination of an established patient for a new illness	14.25	17.52	12.75	12.99	11.73
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	27.70	37.34	23.66	26.99	21.09
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	11.81	13.07	14.14	10.76	9.74
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	13.61	14.61	15.79	12.73	11.69
11. Each additional 15 minutes of doctor's time required over and above routine treatment	8.49	7.19	8.90	8.26	8.85

TABLE 49 - COST OF SERVICES

AVERAGE PRICES CHARGED FOR CHIROPRACTIC SERVICES 1974

		Regional Averages			
Services	National Average	West	North-east	South	North Central
X-RAY SERVICES					
1. Full Spine (14 X 36 AP & Lat)	35.22	40.07	31.72	33.20	33.53
2. Cervicals -- limited (3 views)	20.91	23.01	19.80	19.84	20.60
3. Lumbosacral -- limited (AP & Lat)	23.70	24.87	22.96	22.99	23.60
LABORATORY SERVICES/TESTS					
4. Urinalysis (including microscopic)	4.30	5.25	3.36	3.79	4.27
5. Complete blood count (CBC)	13.18	11.83	6.63	8.54	23.19
PHYSICAL EXAMINATION					
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	14.85	18.96	12.85	13.20	12.00
7. Routine examination examination of an established patient for a new illness	16.25	14.17	8.79	10.35	9.14
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	21.63	32.19	16.62	20.63	16.13
OFFICE VISITS FOR FOLLOW-UP CARE					
9. Office visit/chiropractic adjustment(s)	9.14	10.42	11.07	8.23	7.42
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	10.65	11.89	11.53	9.87	9.01
11. Each additional 15 minutes of doctor's time required over and above routine treatment	7.05	5.93	5.62	6.75	7.26

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VOLUME II

APPENDIX

CHIROPRACTIC HEALTH CARE:

A NATIONAL STUDY OF COST OF EDUCATION, SERVICE UTILIZATION, NUMBER OF PRACTICING DOCTORS OF CHIROPRACTIC AND OTHER KEY POLICY ISSUES

Thomas von Kuster, Jr.

This report is submitted
in partial fulfillment of
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ABSTRACT

This report presents the most comprehensive information ever gathered and analyzed regarding chiropractic health care in the United States. The project is the first federally sponsored study of chiropractic to look at a broad range of issues of concern to policy makers, the profession and the public. Congress mandated this research through passage of the "Health Professions Assistance Act" (P.L. 94-484 Sec. 903). The topics of investigation are:

- o Cost of education and characteristics of educational programs
- o Supply and distribution of Doctors of Chiropractic and their practice characteristics
- o Estimated utilization of chiropractic services
- o Estimated expenditures on chiropractic services
- o Indicators of adequacy of the supply of Doctors of Chiropractic

The report is divided into two volumes. Volume I presents the findings and conclusions of of the study and how the study was completed. Data was collected in 1979 through the use of three national surveys of segments of the profession:

- Service Providers, Doctors of Chiropractic in practice more than two years
- Recent Graduates, Doctors of Chiropractic who have received their degrees in the last two years
- Chiropractic Colleges

Volume II is the Appendix for the report and includes a glossary of terms, copies of the questionnaires for each of the three groups surveyed, the educational requirements of chiropractic colleges, descriptions of sample sizes and survey procedures and other background materials.

The objective of the study was to describe the profession in such a manner that the Congress, the profession, federal agencies and the general public can be better informed about chiropractic which has survived and grown for 85 years without federal assistance or control. Specific findings of the study include:

- o About 23,000 Doctors of Chiropractic (D.C.) are currently practicing in the United States.
- o This number will increase by between 10,000 and 13,000 D.C.s who will be graduated from college in the next five years.
- o An estimated $1.3 billion is spent on chiropractic care annually.
- o Doctors of Chiropractic received approximately 130 million patient visits in 1979.
- o The average annual cost of education per student in chiropractic colleges is $3,310. The average length of a degree program is 4.0 academic years, in addition to the prerequisite of two academic years of post-secondary education.

The study also raises some policy questions for the federal government, the chiropractic profession, members of the health care delivery system and the public at large based on these and other findings.

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APPENDIX I

GLOSSARY OF TERMS

APPENDIX I

GLOSSARY OF TERMS

Active D.C. - A Doctor of Chiropractic established in practice, offering chiropractic services to the public and receiving fees from patients or third-party payers, on a full or part time basis.

Acupuncture - Insertion of needles into a part of the human body for the production of counter-irritation.

Acute injury - Specific damage or wound having a short and relatively severe course.

Adjunctive therapy - Additional therapy contributory to treatment procedures.

Advisory groups - Persons appointed to represent all facets of the profession (See Appendix VII for lists of members of groups).

Aggregate dollar costs (college expenditures) - Total operating costs of an educational institution.

Aggregate level of service utility - Total national use of available services.

Aggregate need of services - Total national need of services.

Allopathic medicine - That method of treating disease by which it is endeavored to produce a condition of the system either different from, opposite to, or incompatible with the condition essential to the disease, e.g. use of antibiotics and vaccination. It is the common method of treatment practiced by Medical Doctors.

Associate or commission practice - The practitioner owner contracts with other practitioners who are paid according to number of hours worked or patients treated.

Associations - I.C.A., A.C.A. - The international and national professional associations of the chiropractic profession.

Cervical - - X-ray of the head and neck (7 cervical vertebrae).

Chest X-ray - X-ray of the part of the body between the neck and the respiratory diaphragm, encased by the ribs.

Chiropractic - A system of mechanical therapeutics based on the principles that the nervous system largely determines the state of health, and disease results from abnormal nerve function and conformity. Treatment consists primarily of the adjustment or manipulation of parts of the body, especially the spinal column. Some chiropractors also use pysiotherapy, nutritional supplementation and other therapeutic madalities; radiography is used for diagnosis only. Chiropractors do not perform surgery or administer drugs. Chiropractic was founded in 1895 by D. D. Palmer and had grown by 1979 to 23,000 practitioners with 16 active chiropractic colleges.

Chiropractic Assistant (C.A.) - C.A.s training may be formal through a chiropractic college or on-the-job. Duties are some or all of the following: office manager, receptionist, public relations officer, bookkeeper, X-ray technician and assisting a D.C. with examination procedures.

Chronic condition - Health condition persisting over a long period of time.

Compound growth rate - Rate of increase as a result of computing periodically the percentage of increase on original fee and accrued increases.

Comprehensive area view - X-ray - A minimum of five X-ray views or angles of a specific area, e.g. the neck.

Cost of education - Total cost of education is the cost to the institution during one year for educating a student, including costs not covered by income from student tuition. Net cost of education is the total cost to the institution per student reduced by revenues from income producing activities such as clinics and auxiliary enterprises such as book stores and cafeterias.

Delphi technique - See Appendix VIII

DHEW - - - - United States Department of Health, Education and Welfare (as of April 1980, separated as the U. S. Department of Health and Human Services and the U. S. Department of Education.

Diathermy - - Application of heat treatment by generating heat in body tissues by passage of high frequency electric currents.

Diplomate status - Professional level of recognition achieved upon meeting specific requirements (X-ray, practicing requirements, final exam) in a specialty degree, e.g. orthopedics in chiropractic.

Econometric analysis - Estimation and testing of economic models and by hypotheses through the use of a wide range of mathematical techniques, some simple and some extremely complex.

Extremity X-ray - X-ray of the limbs or appendages (e.g. hand).

Extremity adjustment - Adjustment of the limbs or appendages (e.g. foot).

First degree program - Program to prepare a student for a first professional degree, e.g. D.C., M.D., D.D.S., L.L.D.

Full spine X-ray - X-ray of the vertebrae, extending from the cranium to the coccyx.

Full time equivalent (FTE) - The full-time equivalent of all part-time teaching hours, e.g. three part-time instructors' teaching time, 35%, 40%, and 50% respectively would equal 1.25 FTE teaching positions.

Group or commission practice - Practice organized as group with all practitioners in the group receiving compensation according to such determinants as hours worked or number of patients treated.

Health care delivery system - Total health care provided in the United States.

Health Resources Administration - Branch of DHEW concerned with health manpower issues.

Imputed income - Income which would otherwise be required to pay for time and other resources, but has been replaced by services or gifts from donors.

Infrared physiotherapy - Treatment used for sore muscles consisting of electromagnetic radiation (wavelengths are longer than visible light and shorter than microwaves).

Inhalation/oxygen therapy - Therapy used for pneumonia and other problems due to lack of oxygen (not used very often by D.C.s)

Licensure - - Authorization by law to practice in the profession after having met educational/proficiency tests or other requirements.

Limited area view X-ray - Two X-ray views, A.P. (anterior-posterior) and lateral of a specific area.

Low volt electrotherapy - Various types of electrical stimulation of muscles used to reduce pain of sprains and strains.

Lumbosacral - Petaining to the lower back (beneath the rib cage and extending to the fused vertebrae between the hip bones).

Medicare Carriers - Private insurance companies that contract with the States to provide coverage for all Medicare coverage in a given area.

Medicare/Medicaid coverage - Reimbursement for treatment when subluxation (incomplete or partial dislocation) of the spine is demonstrated on X-ray (the X-ray is not included in the coverage).

Meridian therapy - System of reflex therapy (involuntary response to stimulus created for a theraputic purpose) that includes acupuncture. Term is often synonymous with acupuncture.

Moist heat hydrocollator - Heat treatment used for muscles, strains.

Multi-office clinics or practices - Practice facilities having more than one practice location.

Objective measures - Measurement based on fact, for example, the number of patients seen per week, or fees charged, etc. obtained from data.

Phlebotomy - Therapeutic practice of opening a vein to draw blood.

Physiotherapy - Diagnosis and treatment of illness with the aid of physical agents, such as heat, cold, light, water, or mechanical apparatus.

Population ratio - Relationship expressing the rate of occurence of health professionals or rate of service delivery per unit of population, usually in multiples of thousands.

Pressure points or reflex techniques - Pressure applied, often with thumb for relief of muscle spasms that may be creating problems.

Private or solo practice - Services are provided by one practitioner.

Professional corporation - Incorporated professional practice.

Roentgenology - A branch of radiology that deals with the diagnostic and therapeutic use of roentgen rays (X-rays).

Routine blood count - Determination of the number of formed elements in a measured volume of blood.

Sampling - - See Appendix IV. A portion selection of a small group for survey purposes. A portion or segment regarded as representative of the whole.

Sole proprietorship - Legal form of practice exclusively and personally owned (office) by one person plus any hired assistants.

Spinal adjustment - Adjustment/manipulation of the spine to properly realign joints, structure of the spine.

Stratified sample - Total population divided into mutually exclusive and extensive subgroups or subsets; a simple random sample of elements is chosen independently from each group or subset.

Subjective evidence - Opinions from which inferences can be drawn.

Third-party payer - Insurance company or other loss institution covering loss according to stipulations of a pre-arranged contract, held by the insured (patient) and/or often an employer in a job, all or part the costs for treatment of loss caused by accident or illness. Medicare and Medicaid are examples.

Traction - - The deliberate and prolonged pulling or holding of a muscle, limb, or the like, as by weights, to correct dislocation, relieve pressure, etc.

Ultrasound therapy - Type of localized deep heat treatment created by sound waves.

Urinalysis - Chemical or microscopical analysis of urine.

Utilization of Service - Rate of use of specific services, measured by number of patient visits and also by number of individual patients served, type and volume of patient care services provided, and the amount of practice revenue generated by active D.C.s. In this report utilization of D.C. services is used as an indicator of demand for D.C. services and D.C.s.

Variable - - One of many characteristics, each of which is measured through data collection and analysis, e.g. type of practice, fees charged for services.

Weighting procedures - A system used to balance the values of variables selected for analysis, to more accurately determine the averages and other statistics which describe variables. See also Appendix V.

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APPENDIX II

EDUCATIONAL REQUIREMENTS

APPENDIX II

REPORT ON EDUCATIONAL REQUIREMENTS OF CHIROPRACTIC COLLEGES

There are presently sixteen (16) chiropractic colleges* operating in the United States; fourteen were operating at the start of the project and are discussed below. While the purpose of this report was not to *analyze* the various requirements, the process of categorizing the information obtained did reveal significant variation among the colleges. Each school has had the opportunity to review the way in which *we* have described *their* requirements and offer correction and explanation where warranted.

What is Meant by Educational Requirement

This report presents information on *admission* and *graduation* requirements for each of the fourteen operating chiropractic colleges in the country at the time the project was begun. Admission requirements are largely procedural with the important exception of the type and amount of post-secondary education necessary for entry into a chiropractic curriculum. Graduation requirements are for the most part defined in terms of the *quantity* of course requirements over a period of study. We have attempted to introduce some uniformity into *reporting* of admission and graduation requirements by developing a series of pre-defined course groupings, and categorizing each course in the required school curriculum by these groupings.

*Note: Since the Preliminary Report on Educational Requirements in December 1977, one college changed its name and two new colleges opened.

Specifically, How Was This Information Obtained

The chart below indicates the materials we used in developing preliminary information for this report. To the best of our knowledge, these catalogs/bulletins were the most current publications available from the schools. Subsequent contact with each institution did however, produce some additional and new information.

College	Source of Information
1. Cleveland Chiropractic College Kansas City, Missouri	Catalog 1977-78
2. Cleveland Chiropractic College Los Angeles, California	Catalog 1977-78
3. Columbia Institute of Chiropractic New York, New York . . . . (Now New York College of Chiropractic)	Bulletin 1975-76
4. Life Chiropractic College Marietta, Georgia	Bulletin 1975-76
5. Logan College of Chiropractic Chesterfield, Missouri	Catalog 1977-78
6. Los Angeles College of Chiropractic Glendale, California	Bulletin 1976-77
7. National College of Chiropractic Lombard, Illinous	Bulletin 1975-76
8. Northern California Chiropractic College Palo Alto, California	Catalog 1978-79
9. Northwestern College of Chiropractic St. Paul, Minnesota.	Bulletin 1977-79
10. Palmer College of Chiropractic Davenport, Iowa	Bulletin 1977-78

11. University of Pasadena Bulletin
Pasadena, California 1976-77

12. Sherman College of Chiropractic Catalog
Spartanburg, South Carolina . . . Bulletin
1977-78

13. Texas Chiropractic College Volume 64
Pasadena, Texas 1975-77

14. Western States Chiropractic College Catalog
Portland, Oregon 1977-78-79

A thorough search of each bulletin was made to extract all relevant educational requirements. Capturing the admission requirements did not present any difficulties. Graduation requirements were much more difficult to obtain, and the presentation of this data varied widely between schools. Two things in particular are problematic. First, for purposes of comparison we felt it was necessary to convert the various curriculum requirements (quarter credits, semester credits, trimester credits) to a standard base. We did so using class hours as the resulting descriptive unit.
The following are the conversion factors we applied:

College	Conversion Factor Data (If Given)
1. Cleveland . . . (Kansas City)	1 trimester credit = 16 clock hours
2. Cleveland . . . (Los Angeles)	1 semester unit = 25 clock hours

3. Columbia (Subsequently changed its name to New York College of Chiropractic . . . 1 trimester credit = one 50-minute class once a week for 16 weeks or 150 minutes of lab a week for 16 weeks

4. Life. . . . . . . 1 quarter credit = 1 lecture hour or 2 lab hours

5. Logan . . . . . . 1 semester unit = 1 class hour a week for 15 weeks or 2 hours of lab a week for 18 weeks

6. Los Angeles . . . 1 semester unit = 1 class hour a week for 18 weeks or 2 lab hours a week for 18 weeks

7. National . . . . 1 trimester credit = one 60 minute class hour per week for 15 weeks or 120 minutes of lab per week for 15 weeks

8. Northern California . . . Courses are referred to by hours only

9. Northwestern. . . 1 semester credit = 1 class hour a week for 18 weeks or 2 lab hours a week for 18 weeks (No equivalency is mentioned for trimester credits even though the last 2 years of education are on a trimester basis)

10. Palmer. . . . . . "Credits are counted in quarter hours. A quarter hour generally refers to one class held five days each week throughout the quarter."

11. Pasadena. . . . . Courses are referred to by hours only

12. Sherman . . . . Courses are referred to by hours only

13. Texas . . . . . No reference made in bulletin or catalog

14. Western States Courses are referred to by hours only

A second problem area was our feeling that this report would not be very useful if a simple enumeration of of course requirements was performed. Instead, we have attempted to summarize this information by developing a standard set of course groupings, the content of which we define below:

1. Basic Sciences: Including Anatomy, Chemistry, Pathology, Microbiology, Public Health

2. Clinical Sciences: Including Physical Diagnosis, Clinical Diagnosis, Laboratory Diagnosis, Roentgenology, Nutrition, Psychology

3. Chiropractic Sciences: Including Orthopedy, Philosophy, Physical Therapy, Palpation and Analysis, Chiropractic Principles and Techniques, Economics and Jurisprudence as it pertains to the practice of chiropractic

4. Clinical Experience: Which includes patient
contact either at the college
clinic or externship experience
at affiliated local clinics

The only problem in having done so is that errors may have occurred in appropriately allocating courses to these categories based upon the limited descriptive information which was available to us. Having given the colleges an opportunity to review the results of this classification however, we are satisfied that the probability of significant error is remote.

What Are The Educational Requirements

The results of the requirements search process are presented at the end of this Appendix for each of the 14 colleges: first, the admission requirements, then the graduation requirements. Generally, there is very little variation in admission requirements in quantitative terms: two years of post-secondary education (60 semester or 90 quarter credits). In qualitative terms, however, there are differences, the most important being in the basic science requirements of biology or chemistry courses.

Since our initial report, and following our analysis of the additional and/or corrected information provided by the colleges in response to our request for verification, it does appear that chiropractic colleges are upgrading admission requirements. Specifically, a higher GPA is now required of the applicant during his/her post-secondary education. Also, it is apparent that there is a greater emphasis on the basic sciences during the preliminary educational experience.

Table 1 presents in quantitative terms the curriculum requirements for each of the original 13 schools reported in December 1977. Variations appear to be extreme both between and among the four course groupings we have used. Speaking generally, though, at least 4,000 class hours are required for graduation. Other than the minimum GPA requirements, the only other factor relevant to the quality of educational experience is the requirements to either take or pass, all or part of the National Board examinations. Four (4) institutions have a requirement that some portion of these examinations must be passed. Three (3) additional schools require only that the exams be taken.

Table 2 presents an update of the information included in the December 1977 report on Educational Requirements for Chiropractic Colleges, and also includes new information on a fourteenth college, the Northern California College of Chiropractic. Generally, the data changed little from the original report. However, the schools did make a number of minor adjustments to our earlier figures.

TABLE 1 - EDUCATIONAL REQUIREMENTS

PRELIMINARY REPORT - DECEMBER 1977
CURRICULUM REQUIREMENTS OF CHIROPRACTIC COLLEGES: A DISTRIBUTION OF CLASS HOURS ACROSS COURSE GROUPINGS*

	COURSE GROUPINGS				
	Basic Science	Clinical Science	Chiropractic Science	Clinical Experience	Total
Cleveland Chiropractic College Kansas City, Missouri	1,888	1,088	800	790	4,566
Cleveland Chiropractic College Los Angeles, California	2,180	1,110	870	720	4,880
Life Chiropractic College Marietta, Georgia	1,408	1,405	1,276	600	4,329
Logan College of Chiropractic Chesterfield, Missouri	1,365	1,470	1,080	800	4,715
Los Angeles College of Chiropractic Glendale, California	2,160	954	702	888	4,704
National College of Chiropractic Lombard, Illinois	2,100	945	615	900	4,560
New York Chiropractic College New York, New York	2,240	816	1,200	904	5,160
Northwestern College of Chiropractic St.Paul, Minnesota	1,728	756	764	850	4,098
Palmer College of Chiropractic Davenport, Iowa	2,280	1,104	660	396	4,440
University of Pasadena Pasadena, California	2,040	1,140	420	720	4,320
Sherman College of Chiropractic Spartanburg, South Carolina	1,680	820	912	840	4,252
Texas Chiropractic College Pasadena, Texas	1,089	1,386	1,125	1,176	4,776
Western States Chiropractic College Portland, Oregon	1,632	480	1,812	900	4,824
AVERAGE	1,830	1,009	941	806	4,586
RANGE	1089-2280	480-1386	420-1812	396-1176	4098-5160

*Unallocatable elective courses not yet added

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TABLE 2

REVISED CURRICULUM REQUIREMENTS OF CHIROPRACTIC COLLEGES: A DISTRIBUTION OF CLASS HOURS ACROSS COURSE GROUPINGS*

	COURSE GROUPINGS				
	Basic Science	Clinical Science	Chiropractic Science	Clinical Experience	Total
Cleveland Chiropractic College Kansas City, Missouri	1,852	1,088	640	800	4,480
Cleveland Chiropractic College Los Angeles, California	2,180	1,110	870	720	4,880
Life Chiropractic College Marietta, Georgia	1,408	1,322	1,276	768	4,824
Logan Collegee of Chiropractic[3] Chesterfield, Missouri	1,365	1,470	1,080	800	4,715
Los Angeles College of Chiropractic Glendale, California	2,070	1,140	975	825	5,010
National College of Chiropractic Lombard, Illinois	2,100	945	615	900	4,560
New York Chiropractic College[1] New York, New York	2,240	816	1,200	904	5,160
Northern California College of[2] Chiropractic, Palo Alto, California	1,704	1,116	960	408	
Northwestern College of Chiropractic St.Paul, Minnesota	1,728	756	764	850	4,098
Palmer College of Chiropractic[3] Davenport, Iowa	2,280	1,104	660	396	4,440
University of Pasadena Pasadena, California	2,160	1,046	874	720	4,800
Sherman College of Chiropractic Spartanburg, South Carolina	1,680	820	912	840	4,252
Texas Chiropractic College Pasadena, Texas	1,611	1,431	1,098	1,176	5,316
Western States Chiropractic College Portland, Oregon	1,632	1,333	1,012	900	4,877
AVERAGE	1,857	1,106	924	786	4,685
RANGE	1365-2280	756-1333	615-1276	396-1176	4098-5316

1 Formerly Columbia Institute of Chiropractic

2 New institution

3 Did not respond to request for revisions or corrections.
Hours from original source document are indicated.

*Unallocatable elective courses not included.

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ADMISSIONS REQUIREMENTS

Name of College Cleveland Chiropractic College
Location Kansas City, Missouri

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.25

C. Course Requirements:
Biological sciences with Lab
(Other than botany) and general
or inorganic chemistry (6 semester hours each)
English/communicative skills (6 semester hours)
Psychology (3 semester hours)
Social Science or Humanities (3 semester hours)
Organic chemistry with lab (6 semester hours)*
Inorganic chemistry with lab (6 semester hours)*

III. Pending Requirements:
Beginning in the fall of 1979, no more than 20 hours of the applicant's preprofessional education can have been acquired through CLEP exams or challenging courses. Such exams in the natural, biological and physical sciences will not apply towards admission.
Before the Fall Trimester of 1979, matriculants must in addition have earned a minimum of six semester hours in english or other communicative skills; one course of a minimum of three semester hours in psychology; one course of a minimum of three semester hours in the social sciences or the humanities; and two courses of a minimum of six semester hours in the biological sciences (other than botany) with laboratory and six semester hours of chemistry or the foreign equivalency.
To qualify for the Winter trimester in 1981 (January 1981) the matriculant must have obtained a minimum of six semester hours in inorganic chemistry with laboratory and six semester hours in organic chemistry with laboratory, or the foreign equivalency.

IV. Other Requirements:

A. Personal Interview Yes
B. Character References Yes, two
C. Photo Yes
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts Yes, from post-secondary schools
F. Tests
G. Other

* Before January of 1981.

ADMISSIONS REQUIREMENTS

Name of College Cleveland Chiropractic College
Location Los Angeles, California

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.5

C. Course Requirements:
Biology with lab (6 semester units)
Chemistry with lab (6 semester units)
Recommended and substantially required:
Social Science (12 semester units)
Humanities (9 semester units)
Communications (6 semester units)
English/communicative skills (6 semester units)
Psychology (3 semester units/1 course)
Social Science/Humanities (3 semester units/1 course)

III. Pending Requirements:
A. As of January 1980: Chemistry with lab, one course in organic chemistry (9 semester units/3 courses)
B. As of January 1981: Inorganic chemistry with lab (6 semester units); organic chemistry with lab (6 semester units)

IV. Other Requirements:
A. Personal Interview Yes, or the recommendations of two chiropractors
B. Character References
C. Photo Yes, two
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts High school and college
F. Tests
G. Other

ADMISSIONS REQUIREMENTS

Name of College Life Chiropractic College
Location Atlanta, Georgia

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.0

C. Course Requirements:
Chemistry and biology with labs (6 semester hours) (excluding botany)
With a minimum grade of 2.0 on a 4.0 scale in each of the chemistry and biology courses

III. Pending Requirements:

IV. Other Requirements:
A. Personal Interview
B. Character References
C. Photo Yes
D. Nonrefundable Matriculation Fee $35.00
E. Transcripts High school and college
F. Tests
G. Other

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ADMISSIONS REQUIREMENTS

Name of College Logan College of Chiropractic
Location Chesterfield, Missouri

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. ____

C. Course Requirements:
Chemistry with lab (6 semester/9 quarter)
Biology with lab (6 semester/9 quarter)
English/communicative skills (6 semester hours)
Social science/humanities (3 semester hours)
Psychology (3 semester hours)
Biological science with lab or chemistry with lab
(2 courses/minimum of 6 semester hours)

III. Pending Requirements:

As of January of 1980:
Chemistry with lab, 1 course of which shall be organic chemistry (3 courses, 9 semester hours)

IV. Other Requirements:
A. Personal Interview ____
B. Character References Yes, letter of recommendation
C. Photo Yes
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts ____
F. Tests ____
G. Other Applicants must be graduates of or eligible to return to the last institution attended

ADMISSIONS REQUIREMENTS

Name of College Los Angeles College of Chiropractic
Location Glendale, California

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.25

C. Course Requirements:

Biology with lab (6 semester hours)
Chemistry with lab (6 semester hours)
English/communicative skills (6 semester hours)
Psychology (3 semester hours)
Social science/humanities (3 semester hours)

III. Pending Requirements:

A. January 1980: Organic chemistry (3 semester hours)
B. January 1981: Organic chemistry (6 semester hours)

IV. Other Requirements:

A. Personal Interview Yes
B. Character References Yes
C. Photo Yes
D. Nonrefundable Matriculation Fee $75.00
E. Transcripts Two, each school attended
F. Tests
G. Other Family financial evaluation form

ADMISSIONS REQUIREMENTS

Name of College The National College of Chiroparactic
Location Lombard, Illinois

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours Minimum of 60 Semester/90 Quarter leading to baccalaureate degree
B. G.P.A. Above 2.25, each grade "C" or higher

C. Course Requirements:

Inorganic chemistry with lab (2 semesters)
Organic chemistry with lab (2 semesters)
Biological science with lab (at least 2 semesters)
English (minimum of 6 semester hours)
Humanities and social studies, which must include introductory psychology (minimum of 18 semesters)

III. Pending Requirements:

IV. Other Requirements:
A. Personal Interview
B. Character References Two
C. Photo Yes
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts High school and college
F. Tests
G. Other Foreign students: Evaluation by World Education Services, Inc.

ADMISSIONS REQUIREMENTS

Name of College New York Chiropractic College
Location New York, New York

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. C Average

C. Course Requirements:

Biology (6 semester hours)
Chemistry (6 semester hours)

III. Pending Requirements:

IV. Other Requirements:
A. Personal Interview Yes
B. Character References
C. Photo Yes
D. Nonrefundable Matriculation Fee $35.00
E. Transcripts High school and college
F. Tests
G. Other

ADMISSIONS REQUIREMENTS

Name of College Northern California College of Chiropractic
Location Palo Alto, California

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semesters/90 Quarters

B. G.P.A. 2.0 All grades applicable to biology or chemistry require a C grade

C. Course Requirements:

Biology with lab (6 units)
Chemistry with lab (6 units)
English or communicative skills (6 units)
Psychology ((3 units)
Humanities or social sciences (3 units)

III. Pending Requirements:

Effective January 1980: Organic chemistry with lab (3 additional units)

IV. Other Requirements:

A. Personal Interview Yes
B. Character References Yes, two each, preferably from D.C.s
C. Photo Yes, 2" X 2"
D. Nonrefundable Matriculation fee $25.00
E. Transcripts All official college and high school, or copy of diploma
F. Tests
G. Other Essay: How the applicant developed an interest in chiropractic

ADMISSIONS REQUIREMENTS

Name of College Northwestern College of Chiropractic
Location St. Paul, Minnesota

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. C Average (2.0 on a 4.00 scale)*

C. Course Requirements:

Biology with lab (3 quarters or 2 semesters)
Chemistry with lab (leading up to but not including organic chemistry (3 quarters/2 semesters)
Physics (1 quarter or 1 semester)
Psychology (1 quarter or 1 semester)
English/communicative skills (6 semesters/9 quarters)
Social sciences or humanities (3 quarters or 3 semesters)

III. Pending Requirements:

A. Fall of 1980: (same as Fall of 1979)*
Inorganic chemistry with lab (2 semesters)
B. Fall of 1981: (same as Fall of 1979 plus 6 semester hours of organic chemistry with lab)

IV. Other Requirements:
A. Personal Interview
B. Character References Yes, 2
C. Photo
D. Nonrefundable Matriculation Fee $35.00
E. Transcripts Yes, indicative of potential to profit from D.C. training
F. Tests
G. Other

*Parenthesis indicates update as of March 21, 1979.

ADMISSIONS REQUIREMENTS

Name of College Palmer College of Chiropractic
Location Davenport, Iowa

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.0

C. Course Requirements:

Zoology with lab or biology with lab (6 semesters)
General chemistry with lab or inorganic chemistry with lab (6 semesters)
English/communicative skills (6 semesters)
Psychology (3 semesters)
Social science/humanities (3 semesters)

III. Pending Requirements:

January 1980: Chemistry with lab, one of which shall be inorganic chemistry (3 courses/9 semesters)

IV. Other Requirements:

A. Personal Interview
B. Character References
C. Photo
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts Yes
F. Tests
G. Other

ADMISSIONS REQUIREMENTS

Name of College University of Pasadena
Location Pasadena, California

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.25

C. Course Requirements:

English/communicative skills (6 hours)
Psychology (1 course of minimum of 3 semester hours)
Social sciences or humanities (1 course of minimum or 3 semester hours)
Biological sciences other than botany with lab (minimum of 6 semester hours)
Chemistry (6 semester hours)
"C" average or better is required in all laboratory biology and chemistry classes.

III. Pending Requirements:

IV. Other Requirements:
A. Personal Interview Yes
B. Character References
C. Photo Yes
D. Nonrefundable Matriculation Fee $75.00
E. Transcripts High school and college
F. Tests
G. Other

ADMISSIONS REQUIREMENTS

Name of College Sherman College of Straight Chiropractic
Location Spartanburg, South Carolina

I. High School Graduate or Certificate of Equivalency? X Yes __ No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.0

C. Course Requirements:

Chemistry with lab (6 semester hours)
Biology with lab (6 semester hours)*
Organic chemistry (3 semester hours)**
English/communicative skills (6 semester hours)
Psychology (1 course with minimum of 3 credit hours)
Social sciences or humanities (1 course with a minimum of 3 credit hours)

III. Pending Requirements:

As of January 1980: Chemistry with lab, 1 course of which shall be organic chemistry (3 courses with a minimum of 9 semester hours)

IV. Other Requirements:
A. Personal Interview Highly recommended
B. Character References Two required
C. Photo Yes
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts ____
F. Tests ____
G. Other ____

*Zoology may be substituted for general biology.
**Can be earned at an accredited college during the first year at Sherman.

ADMISSIONS REQUIREMENTS

Name of College Texas Chiropractic College
Location Pasadena, Texas

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/90 Quarter

B. G.P.A. 2.25

C. Course Requirements:

General Biology with lab (6 semester hours)
Inorganic chemistry with lab (6 semester hours)
English/speech (6 semester hours)
Psychology (3 semester hours)
Sociology or another course in the humanities
(3 semester hours)

III. Pending Requirements:

Fall 1981: Organic chemistry (2 semesters)

IV. Other Requirements:
A. Personal Interview Yes
B. Character References Yes, 2 from non-relatives
C. Photo Yes
D. Nonrefundable Matriculation Fee $25.00
E. Transcripts High school and college
F. Tests
G. Other

ADMISSIONS REQUIREMENTS

Name of College Western States Chiropractic College
Location Portland, Oregon

I. High School Graduate or Certificate of Equivalency? X Yes __No

II. Post-Secondary Education

A. No. Hours 60 Semester/19 Credit Hours

B. G.P.A. 2.25

C. Course Requirements:

General chemistry with lab (6 semesters/9 quarters)
Biology with lab (6 semesters/9 quarters)
General psychology (4 semesters/6 quarters)
English composition/communication (4 semesters/6 quarters)
College math - algebra (3 semesters/4 quarters)*
Organic chemistry with lab (6 semesters/9 quarters)

III. Pending Requirements:

IV. Other Requirements:
A. Personal Interview Yes
B. Character References Yes
C. Photo
D. Nonrefundable Matriculation Fee $35.00
E. Transcripts High school and college
F. Tests Submit scores for Allied Health Professions Admission Test
G. Other If pre-chiropractic course work was done more than 5 years prior to application for admission, applicant may be required to take special exams.

*WSCC exam may be accepted in lieu of course work.

GRADUATION REQUIREMENTS

Name of College Cleveland Chiropractic College
Location Kansas City, Misouri

		Required Hours
I.	Basic Sciences	1852
II.	Clinical Sciences	1088
III.	Chiropractic Sciences	640
IV.	Clinical Experience	800
	TOTAL	4480

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School	X Yes	___ No
Recommendation by Faculty	X Yes	___ No
Specific Length of Time at Named College If Yes, How Long Four academic years (36 months) or 9 trimesters of 4 month each	X Yes	___ No
Must Pass State/National Tests If Yes, Specify ______	___ Yes	X No

Other Satisfactory completion of clinical requirements

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College Cleveland Chiropractic College
Location Los Angeles, California

		Required Hours
I.	Basic Sciences	2180
II.	Clinical Sciences	1110
III.	Chiropractic Sciences	870
IV.	Clinical Experience	720
	TOTAL	4880

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School X Yes ___ No
Recommendation by Faculty ___ Yes X No
Specific Length of Time at Named College X Yes ___ No
If Yes, How Long Continuous attendance last 3 trimesters

Must Pass State/National Tests X Yes ___ No
If Yes, Specify National Board Parts I and II prior to gradution (Including Clinical Competency Exam)
Other Must pass all Final Exams at Cleveland College

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College Life Chiropractic College
Location Marietta, Georgia

		Required Hours
I.	Basic Sciences	1408
II.	Clinical Sciences	1372
III.	Chiropractic Sciences	1276
IV.	Clinical Experience	768
	TOTAL	4824*

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School	X Yes	___No
Recommendation by Faculty	X Yes	___No
Specific Length of Time at Named College	X Yes	___No

If Yes, How Long

Must Pass State/National Tests	___Yes	X No

If Yes, Specify

Other None

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

*The total number of hours required for graduation is 4395 which includes an additional 66 credits of speech.

GRADUATION REQUIREMENTS

Name of College Logan College of Chiropractic
Location Chesterfield, Misouri

		Required Hours
I.	Basic Sciences	1365
II.	Clinical Sciences	1470
III.	Chiropractic Sciences	1080
IV.	Clinical Experience	800
	TOTAL	4715

V. Age Requirement 21

VI. School Policies:

Payment of All Indebtedness to School	X Yes	No
Recommendation by Faculty	Yes	X No
Specific Length of Time at Named College	X Yes	No
If Yes, How Long Last 3 trimesters		
Must Pass State/National Tests	Yes	X No
If Yes, Specify		

Other Presence at Graduation

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College Los Angeles College of Chiropractic
Location Glendale, California

		Required Hours
I.	Basic Sciences	2070
II.	Clinical Sciences	1140
III.	Chiropractic Sciences	975
IV.	Clinical Experience	825
	TOTAL	5010*

V. Age Requirement 21

VI. School Policies:

Payment of All Indebtedness to School X Yes ___ No
Recommendation by Faculty ___ Yes X No
Specific Length of Time at Named College X Yes ___ No
If Yes, How Long Last year

Must Pass State/National Tests X Yes ___ No
If Yes, Specify Part I of National Boards and Clinic Entrance Examination

Other Fulfill clinical externship requirements

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

*The total number of hours required for graduation is 5010 which includes an additional number of non-requisite elective hours.

GRADUATION REQUIREMENTS

Name of College The National College of Chiropractic
Location Lombard, Illinois

		Required Hours
I.	Basic Sciences	2100
II.	Clinical Sciences	945
III.	Chiropractic Sciences	615
IV.	Clinical Experience	900
	TOTAL	4560

V. Age Requirement 21

VI. School Policies:

Payment of All Indebtedness to School [✓ Yes] No
Recommendation by Faculty Yes [✓ No]
Specific Length of Time at Named College [✓ Yes] No
If Yes, How Long Last two years minimum

Must Pass State/National Tests [✓ Yes] No
If Yes, Specify Part I of National Boards or a State Basic Science Board

Other None

VII. G.P.A. 2.00

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College New York Chiropractic College
Location New York, New York

		Required Hours
I.	Basic Sciences	2240
II.	Clinical Sciences	816
III.	Chiropractic Sciences	1200
IV.	Clinical Experience	904
	TOTAL	5160

V. Age Requirement 21

VI. School Policies:

Payment of All Indebtedness to School	___ Yes	X No
Recommendation by Faculty	___ Yes	X No
Specific Length of Time at Named College	X Yes	___ No
If Yes, How Long Last Year		
Must Pass State/National Tests	___ Yes	X No
If Yes, Specify		

Other Presence at graduation
Taken parts I and II of
National Boards

VII. G.P.A. None

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College Northern California College of Chiropractic
Location Palo Alto, California

		Required Hours
I.	Basic Sciences	1704
II.	Clinical Sciences	1116
III.	Chiropractic Sciences	960
IV.	Clinical Experience	408
	TOTAL	4488*

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School X Yes ___ No
Recommendation by Faculty X Yes ___ No
Specific Length of Time at Named College X Yes ___ No
If Yes, How Long Minimum 2-year residency

Must Pass State/National Tests X Yes ___ No
If Yes, Specify Part I National Board required (to enter clinic) once students are allowed to write the Board

Other None

VII. G.P.A. C average in basic sciences
B average in clinical sciences

VIII. Additional Study Requirements:

Scientific methodology and community service practimum courses.

*Includes 300 hours which consist of 120 hours of ethics and jurisprudence, office procedure as required by California law, and other electives not assigned to the sciences or clinical experience in items I through IV.

GRADUATION REQUIREMENTS

Name of College Northwestern College of Chiropractic
Location St. Paul, Minnesota

		Required Hours
I.	Basic Sciences	1728
II.	Clinical Sciences	756
III.	Chiropractic Sciences	764
IV.	Clinical Experience	850
	TOTAL	4098

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School X Yes ___ No
Recommendation by Faculty ___ Yes X No
Specific Length of Time at Named College X Yes ___ No
If Yes, How Long Last year

Must Pass State/National Tests X Yes ___ No
If Yes, Specify Must pass Part I, National Boards to begin senior internship

Other None

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

Submitted evidence of the completion of prescribed independent study; junior and senior internship requirements; completion of at least 102 hours of elective subjects.*

*Update as of March 21, 1979.

GRADUATION REQUIREMENTS

Name of College Palmer College of Chiropractic
Location Davenport, Iowa

		Required Hours
I.	Basic Sciences	2280
II.	Clinical Sciences	1104
III.	Chiropractic Sciences	660
IV.	Clinical Experience	396
	TOTAL	4440

V. Age Requirement None

VI. School Policies: None Listed

Payment of All Indebtedness to School ___Yes ___No
Recommendation by Faculty ___Yes ___No
Specific Length of Time at Named College ___Yes ___No
If Yes, How Long ___

Must Pass State/National Tests ___Yes ___No
If Yes, Specify ___

Other None

VII. G.P.A. Referred to but not stated

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College University of Pasadena
Location Pasadena, California

		Required Hours	
I.	Basic Sciences	2040	(2160)*
II.	Clinical Sciences	1140	(1240)*
III.	Chiropractic Sciences	420	(660)*
IV.	Clinical Experience	720	(740)*
	- TOTAL	4320	(4800)*

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School	X*Yes	___No
Recommendation by Faculty	X*Yes	___No
Specific Length of Time at Named College	X*Yes	___No
If Yes, How Long Last year		
Must Pass State/National Tests	X*Yes	___No

If Yes, Specify Parts I and II of the National Boards and the Clinic Entrance Exam

Other None

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

*The college's interpretation based on data sent them January 30, 1978.

GRADUATION REQUIREMENTS

Name of College Sherman College of Straight Chiropractic
Location Spartanburg, South Carolina

		Required Hours
I.	Basic Sciences	1680
II.	Clinical Sciences	820
III.	Chiropractic Sciences	912
IV.	Clinical Experience	840
	TOTAL	4252

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School	X Yes	___ No
Recommendation by Faculty	X Yes	___ No
Specific Length of Time at Named College	X Yes	___ No
If Yes, How Long ____________		
Must Pass State/National Tests	___ Yes	X No
If Yes, Specify ____________		

Other Take National Boards

VII. G.P.A. 2.0 with 3.0 in technique

VIII. Additional Study Requirements:

None

GRADUATION REQUIREMENTS

Name of College Texas Chiropractic College
Location Pasadena, Texas

		Required Hours
I.	Basic Sciences	1611
II.	Clinical Sciences	1431
III.	Chiropractic Sciences	1098
IV.	Clinical Experience	1176
	TOTAL	5316

V. Age Requirement None

VI. School Policies:

Payment of All Indebtedness to School	X Yes	___ No
Recommendation by Faculty	X Yes	___ No
Specific Length of Time at Named College	X Yes	___ No

If Yes, How Long Last year

Must Pass State/National Tests	X Yes	___ No

If Yes, Specify Pass Part I of National Board

Other Take Part II of National Board

VII. G.P.A. 2.0

VIII. Additional Study Requirements:

None

NOTE: Credits are in terms of semester hours which researcher has attempted to convert to hours.

GRADUATION REQUIREMENTS

Name of College Western States Chiropractic College
Location Portland, Oregon

		Required Hours
I.	Basic Sciences	1632
II.	Clinical Sciences	1333
III.	Chiropractic Sciences	1012
IV.	Clinical Experience	900
	TOTAL	4877

V. Age Requirement 21

VI. School Policies:

Payment of All Indebtedness to School	X Yes	No
Recommendation by Faculty	Yes	X No
Specific Length of Time at Named College	X Yes	No
If Yes, How Long Last Year		
Must Pass State/National Tests	X Yes	No
If Yes, Specify Part I National Boards		

Other Taken Part II of National Boards
Completion of minimum clinical
requirements

VII. G.P.A. 2.0 (being raised to 2.5)

VIII. Additional Study Requirements:

Completion of minimum clinical requirements

VOLUME II

APPENDIX III

SURVEY INSTRUMENTS

APPENDIX III
SURVEY INSTRUMENTS

This Appendix contains the survey instruments and cover letters used in completing the study. They are presented in the following order:

- The College Survey Booklets and cover letter
- The Service Provider Survey Booklets and a sample cover letter
- The Recent Graduate Survey Booklets and a sample cover letter
- The Non-Respondent Surveys for both Service Providers and Recent Graduates

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Dear Doctor,

As you know, the federal government has for the first time provided funding for a major study of chiropractic in the United States. The attached survey questionnaire is one portion of the study. It requests information about the education of Doctors of Chiropractic which only the colleges themselves can provide.

This questionnaire has been divided into three booklets so that you can distribute the sections of the questionnaire to those faculty members most knowledgeable about the topics involved:

- Booklet I contains questions on student enrollment, your college's academic year, and the job/labor market for your graduates.
- Booklet II requests information about the faculty (number, salary, time allotments, etc.), the physical facilities, and the college budget (sources of income and expenditures).
- Booklet III concerns your school's clinic facility(ies).

Please return all three (3) booklets in the same enclosed self-addressed, stamped envelope.

We ask your cooperation in completing this questionnaire and returning it as soon as possible. Getting returns from every college is important because we will be able to better assess the current status of the practice of chiropractic and accurately report these findings to Congress.

Your response will be kept completely confidential, and data from the study will be released in summary form only. Please do not identify yourself anywhere on the survey. If you have questions about the survey, please contact our subcontractors directly so we can clear up any areas of uncertainty that you or your staff might have about the survey. (Please call Tom von Kuster, Jr., at 612/333-5511.)

An advisory group representing the wide professional cooperation with the study has been organized. We feel that the entire profession of chiropractic can benefit significantly from the results obtained from this survey. Your time and effort in carefully answering each question is genuinely appreciated. Thank you.

Sincerely,

Dr. Jerome McAndrews
Project Director, FACTS

Dr. Joseph Mazzarelli
President, ICA and FACTS

Dr. Harry Swanson
Gov., District 6, ACA

Dr. Ed Velie
Statistician, ACA

Dr. Vern Webster, Pres.
Federation of Chiropractic
Licensing Boards

Dr. Jack Wilson
Alabama Chiropractic Assn.

Dr. John Wolfe
President, CCE

Foundation for the Advancement of Chiropractic Tenets and Science, 741 Brady St., Davenport, IA, 52808, 319/322-4447

Manpower in the Chiropractic Health Profession: A Survey of Training Programs, Recent Graduates and Service Providers

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Chiropractic College Questionnaire

Booklet I:

Academic Year, Student Enrollment, and Job/Labor Market for Graduates

Prepared and published by

facts

Foundation for the Advancement of Chiropractic Tenets and Science, 741 Brady St., Davenport, IA, 52808, 319/322-4447

About FACTS

FACTS is a public, non-profit research foundation established to encourage and support research in the chiropractic sciences and assist and support colleges of chiropractic.

FACTS was founded in 1977 by the International Chiropractors Association (ICA), a professional association organized in 1926.

In October, 1977 FACTS was awarded a research contract from the Department of Health, Education and Welfare for a 14-month study of the supply of and demand for chiropractic services in the United States. The study fulfills the legislative mandate in Section 903 of the "Health Professions Educational Assistance Act" (P.L. 94-484) which requires a report to Congress on chiropractic service demand, adequacy of supply, and the cost of chiropractic education.

Instructions for Booklet I: Academic Year, Student Enrollment, and Job/Labor Market for Graduates

This questionnaire, in three sections, is addressed to all chiropractic college programs.

Questions in Booklet I concern the academic year, the student body, and the job/labor market served by your college. It should be filled out by someone familiar with the number of students, the academic calendar, and job market/placement for your college.

Questions in Booklet II concern the faculty, school facilities, and the college budget. This section should be completed by the faculty member most familiar with faculty descriptions and time allotments, with college facilities, and with budget issues.

Booklet III contains questions about the college's clinic facility(ies). This should be completed by the clinic director.

In completing this section, answer each question by placing an "X" in the space provided to the left of the response you have chosen. Select the best single response for each question.

Several questions in this survey ask you to provide specific dates or numbers. Please try to answer each question as accurately and completely as possible. However, if you do not have the data readily available, your best estimate will be sufficient.

When you have completed this booklet, return it to your college president as soon as possible so that he can return all three booklets to us. If you have any questions, please call Tom von Kuster, Jr., at 612/333-5511.

SECTION I

This section asks you to describe your college, degrees granted, academic calendar, etc.

1. In what year did your college first begin to offer a D.C. program?

   ________ year

2. In what year did your college grant its first D.C. degree?

   ________ year

3. What degrees or certificates does your college confer on graduating students?

   ☐ D.C.
   ☐ No other degrees offered (go on to question 4)
   ☐ B.A. [please specify the area(s)] ____________ ____________
   ☐ B.S. [please specify the area(s)] ____________ ____________
   ☐ Junior College diploma (Associate Arts degree)
   ☐ Chiropractic Assistant (C.A.) degree
   ☐ Postgraduate degrees/certificates (please specify what areas)
   ____
   ☐ Other degrees/certificates awarded to students (please specify)
   ____

4. What type of academic calendar does your college follow?

   ☐ semester
   ☐ trimester
   ☐ quarter
   ☐ other (please specify) ______________________

5. Does this calendar apply to all classes from freshman to senior?

☐ Yes

☐ No . . . see 5a below.

5a. How do the academic calendars change from one class to the next?

____

____

6. Is your college planning to change its academic calendar in the near future?

☐ No

☐ Yes . . .please specify how and why the calendar will be changed

____

____

7. During what portion of the year does your college offer courses to D.C. degree students?

☐ Year round (each quarter, trimester or semester) including an extensive summer session

☐ Year round but including only a limited summer session

☐ Closed for summer vacation

8. How long does it take for an average student to complete his/her course of study for a D.C. degree?

__________ years and __________ months

9. How often do D.C. classes graduate from your school?

☐ one class per year

☐ two classes per year

☐ three classes per year

☐ other (please specify) ______________________________

The following questions concern the student body, graduates, the D.C. labor market and placement of graduates.

10. Is your program particularly oriented toward meeting the D.C. labor market needs (i.e., educating and placing practicing D.C.s) in your state, your region, or the nation?

☐ the state where your college is located

☐ region(s) served . . . please specify the region(s) from the list of census regions on the following page (please list the region number(s)). ___ ___ ___ ___ ___ ___ ___ ___

☐ nationally (all regions listed on the following page)

11. Indicate the proportion of entering D.C. students who come from:

_____% the state where your college is located

_____% region(s) served as listed above in question 10

_____% rest of nation

_____% foreign students

100% TOTAL

☐ unable to estimate

12. How often are new D.C. students admitted to your college?

☐ once a year

☐ twice a year

☐ three times a year

☐ four times a year

☐ more often (please specify) ______________________________

13. How many applications did your college receive for places in the 1978-9 freshman/entering class(es)?

_________ number of applications for places

_________ number of places available

NORTH CENTRAL REGIONS

1. East North Central:

    Illinois
    Indiana
    Michigan
    Ohio
    Wisconsin

2. West North Central:

    Iowa
    Kansas
    Minnesota
    Missouri
    Nebraska
    North Dakota
    South Dakota

SOUTHERN REGIONS

3. South Atlantic:

    Delaware
    District of Columbia
    Florida
    Georgia
    Maryland
    North Carolina
    South Carolina
    Virginia
    West Virginia

4. East South Central:

    Alabama
    Kentucky
    Mississippi
    Tennessee

5. West South Central:

    Arkansas
    Louisiana
    Oklahoma
    Texas

NORTHEASTERN REGIONS

6. New England:

    Connecticut
    Maine
    Massachusetts
    New Hampshire
    Rhode Island
    Vermont

7. Middle Atlantic:

    New Jersey
    New York
    Pennsylvania

WESTERN REGIONS

8. Mountain:

    Arizona
    Colorado
    Idaho
    Montana
    Nevada
    New Mexico
    Utah
    Wyoming

9. Pacific:

    Alaska
    California
    Hawaii
    Oregon
    Washington

14. What is your college's definition of part and full time students (in terms of class hours or other criteria)?

part-time student ____

____

full time student ____

____

15. How many 1977-8 students are full time or part-time students? (For the next several questions, please estimate total enrollment using full time and full time equivalent students (part-time students) as requested.)

_________ number of full time students

_________ number of part-time students

16. What have your total student (full time and full time equivalent) semester/trimester/quarter enrollments been for the last two years by semester/trimester/quarter? (use as many blanks as necessary)

For 1977-8	_________	_________	_________	_________
	1st (Fall)	2nd	3rd	4th
For 1978-9	_________	_________	_________	_________
	1st (Fall)	2nd	3rd	4th

17. How many D.C. students do you now have in each class? (Please use as many columns as you require to match classes and their progress through your D.C. program.)

	First Entering Class/Yr	Second Entering Class/Yr	Third Entering Class/Yr	Other Entry/Yr
entering class	_______	_______	_______	_______
second year	_______	_______	_______	_______
third year	_______	_______	_______	_______
fourth year	_______	_______	_______	_______

17a. Can you specify your enrollment of students seeking the D.C. degree as of October 15, 1977?

_________ number of students (full time and full time equivalent)

17b. Can you specify your total enrollment of students seeking the D.C. degree as of October 15, 1978?

_________ number of students (full time and full time equivalent)

18. How many students does your college have seeking other degrees/certificates (beyond the D.C. degree) awarded by your college?

_________ number of B.A. students

_________ number of B.S. students

_________ number of Junior College diploma (Associate Arts degree) students

_________ number of Chiropractic Assistant (C.A.) degree students

_________ number of postgraduate degree/certificate students

_________ number of non-D.C. students seeking any other degrees/certificates not listed above

19. For the last year (class) about which you reported to CCE, what percentage of D.C. students graduated out of those who originally entered the class?

_____% in _______ (year)

19a. For the last graduating class, what percentage graduated out of those who originally entered the class?

_____% in ___________ (month) ________ (year)

20. How many D.C. students have entered your college as transfer students from other chiropractic colleges the past two years? (Write "none" if no students transferred.)

_________ 1977-8 number of D.C. transfer students

_________ 1978-9 number of D.C. transfer students

20a. Do any of your students transfer to other D.C. colleges?

☐ No

☐ Yes . . . If yes, how many? _________number of students

21. How have your D.C. student enrollment and number of applications changed over the previous four years (include full time students and convert part-time students to full time equivalents)?

	Enrollment	Applications
1977	_________	_________
1976	_________	_________
1975	_________	_________
1974	_________	_________

22. In the last two years, 1978 and 1979, do you feel that your D.C. program enrollment has been at capacity or not?

☐ at capacity (you have the proper number of students for your present facilities and faculty)

☐ under capacity (the present facilities and faculty could support a larger student body); please specify/estimate number of places not filled

_________number of students below capacity . . . see 22a

☐ over capacity (there are too many students for the present faculty and facilities); please specify/estimate number of students in excess of capacity

_________number of students above capacity . . . see 22b

22a. If your program is operating below capacity (the present facilities and faculty could support a larger number of students), indicate why you think this is the case. Rank order the three most important reasons from among the factors listed below. (1 as the most important, 2 as the second most important, etc.)

_____tuition too high and there is not sufficient student support available to reduce costs to students

_____too few jobs available for graduates

_____wages for available jobs too low

_____prestige of occupation is low compared to other occupations

_____prospective students are not aware of the occupation

_____prospective students are not aware of the training program

_____other (specify)____

____

22b. If your program is operating above capacity (there are too many students for the present faculty and facilities), what are the principal barriers to expanding capacity? Rank the four most important barriers to expanding from among the factors listed below. (1 as the most important, 2 as the second most important, etc.)

_____limited funds for faculty

_____limited funds for other staff

_____limited funds for equipment

_____insufficient or unsuitable physical facilities for classroom instruction

_____inadequate or insufficient clinical training facilities

_____unable to recruit qualified faculty to fill vacancies, when funds are available

_____insufficient job opportunities for your graduates

_____quality of graduates would suffer

_____other (specify) ____

____

23. Have you projected your enrollment into future years?

☐ Yes . . . see 23a

☐ No

23a. What do you expect total enrollment for D.C. degree students to be over the next five years?

_________1979 total enrollment

_________1980 total enrollment

_________1981 total enrollment

_________1982 total enrollment

_________1983 total enrollment

24. How many D.C. students do you expect to enter and to graduate over the next five years?

	Enter	Graduate
1979		
1980		
1981		
1982		
1983		

The next several questions ask about your planning for manpower needs for your graduates, your college's placement services and your perception of the current, past, and future employment opportunities for graduates produced by your program.

25. Does your college keep in touch with its graduates?

☐ yes, informally or irregularly and no list of current addresses is maintained for graduates

☐ yes, regularly and systematically through periodic surveys, annual giving, or alumni news letters using a current mailing list

☐ no

26. Do you make use of any projections of future manpower needs in chiropractic when you carry out program planning?

☐ no

☐ yes . . . What kind of projections do you use? ______________

____

27. Do you keep informed about where your recent graduates begin practicing after graduation?

☐ yes, formally about nearly all graduates

☐ yes, but not all graduates, or on an informal, personal contact basis

☐ no, not at all

27a. Please estimate what percentage of 1977-8 graduates are practicing in:

_____% the state where your college is located

_____% your region . . . as you defined it in questions 10 and 11

_____% outside your state and region, nationally

_____% in foreign countries

_____% not employed/practicing in chiropractic

100 %

☐ unable to estimate

27b. Do you know of any graduates from your college in the last five years who are trained but not practicing?

☐ no

☐ yes . . . Please estimate the number of nonpracticing graduates:

_________graduates ☐ unable to estimate

28. What size population is required to support a D.C. in an average practice? Please specify the average practice in terms of gross revenues per year.

$_________average practice annual gross revenues

_________number of people needed to support average practice

28a. What is the typical starting salary for D.C.s entering their first job/practice?

$__________annual starting salary

29. What sources of information did you use to answer 27, 28 and 28a?

____

____

____

30. How would you rate the current D.C. practice/employment opportunities for your graduates in your state?

☐ Excellent: Virtually all students could secure desirable positions after graduation/becoming licensed.

☐ Good: Nearly all students could secure positions before or shortly after graduation/becoming licensed.

☐ Average: Some students might experience considerable difficulty in securing suitable positions after graduation/becoming licensed.

☐ Fair: A substantial number of students might still be unable to secure positions after graduation/becoming licensed.

☐ Poor: Most graduates would have difficulty securing positions after graduation/becoming licensed. Some would be forced to seek positions unrelated to their training.

31. How would you rate the current D.C. practice/employment opportunities for your graduates in your region (as you have defined it earlier in questions 10 and 11)?

☐ Excellent: Virtually all students could secure desirable positions after graduation/becoming licensed.

☐ Good: Nearly all students could secure positions before or shortly after graduation/becoming licensed.

☐ Average: Some students might experience considerable difficulty in securing positions after graduation/becoming licensed.

☐ Fair: A substantial number of students might still be unable to secure positions after graduation/becoming licensed.

☐ Poor: Most graduates would have difficulty securing positions after graduation/becoming licensed. Some would be forced to seek positions unrelated to their training.

32. How would you rate the current D.C. practice/employment opportunities for your graduates nationally?

☐	Excellent:	Virtually all students could secure desirable positions after graduation/becoming licensed.
☐	Good:	Nearly all students could secure positions before or shortly after graduation/becoming licensed.
☐	Average:	Some students might experience considerable difficulty in securing suitable positions after graduation/becoming licensed.
☐	Fair:	A substantial number of students might still be unable to secure positions after graduation/becoming licensed.
☐	Poor:	Most graduates would have difficulty securing positions after graduation/becoming licensed. Some would be forced to seek positions unrelated to their training.

33. Generally, how have job opportunities changed for your graduates in the last five years relative to the scales above? (Place an X in the space below which best represents change in job opportunities)

Gotten much worse	Gotten worse	Stayed the same	Gotten better	Gotten much better

33a. Please explain why.

____

____

34. How do you expect job opportunities to change for your graduates in the next five years? (Place an X in the space below which best represents expected change in job opportunities)

To get much worse	To get worse	Stay the same	To get better	To get much better

34a. Please explain why.

____

____

34b. Are there any states or areas within states where you believe there is a problem of over supply of D.C.s at the present time? (ie. too many D.C.s practicing for the number of people/patients in a given area.)

☐ No

☐ Yes . . . Which ones? ______________________________

____

34c. Are there any states or areas within states where you believe there is a problem of under supply of D.C.s at the present time? (ie. too few D.C.s who cannot satisfy the demand for patient care in their area.)

☐ No

☐ Yes . . . Which ones? ______________________________

____

34d. What sources of information did you use to answer 34b and 34c?

____

____

____

Thank you for your help in our study. Please return Booklet I to the college president.

If you have any questions about Booklet I, please call Tom von Kuster, Jr., at 612/333-5511.

Manpower in the Chiropractic Health Profession: A Survey of Training Programs, Recent Graduates and Service Providers

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Chiropractic College Questionnaire

Booklet II:

Faculty, Facilities and Budget

Prepared and published by

facts

Foundation for the Advancement of Chiropractic Tenets and Science, 741 Brady St., Davenport, IA, 52808, 319/322-4447

About FACTS

FACTS is a private, non-profit research foundation established to encourage and support research in the chiropractic sciences and assist and support colleges of chiropractic.

FACTS was founded in 1977 by the International Chiropractors Association (ICA), a professional association organized in 1926.

In October, 1977 FACTS was awarded a research contract from the Department of Health, Education and Welfare for a 14-month study of the supply of and demand for chiropractic services in the United States. The study fulfills the legislative mandate in Section 903 of the "Health Professions Educational Assistance Act" (P.L. 94-484) which requires a report to Congress on chiropractic service supply and demand.

Instructions for Booklet II: Faculty Facilities and Budget

This questionnaire, in three sections, is addressed to all chiropractic college programs.

Questions in Booklet II concern the faculty, school facilities, and the college budget. This section should be completed by the faculty member most familiar with the faculty (descriptions and time allotments), with school facilities, and with budget issues.

In completing this section, answer each question by placing an "X" in the space provided to the left of the response you have chosen. Select the best single response for each question.

Several questions in this survey ask you to provide specific dates or numbers. Please try to answer each question as accurately and completely as possible. However, if you do not have the data readily available, your best estimate will be sufficient.

When you have completed this booklet, return it to your college president as soon as possible so that he can return all three booklets to us. If you have any questions, please call Tom von Kuster, Jr., at 612/333-5511.

SECTION II

Below are questions concerning the faculty of your college. The information requested includes faculty time allotments, faculty size, faculty salaries, and faculty course responsibilities.

35. Please define what a full time faculty member's duties are at your college in terms of time, class hours and/or job within the college.

35a. Please define what a part-time faculty member's duties are at your college.

36. How many full time and part-time faculty does your college employ in the following areas? (Please specify part-time as a percent of full time given the descriptions below of classes of part-time work. For example, 75%, 50%, and 25%.)

	Basic Sciences	Chiropractic and Clinical Science, Clinical Experience	Administrative Faculty	Total Faculty
Full time				
___% time defined as				
___% time defined as				
___% time defined as				
Other mixes (please specify)				

37. What is the average annual salary for each of the groups below? (Use the same definitions of part-time teachers as used in Question 35.)

	Basic Sciences	Chiropractic and Clinical Science, Clinical Experience	Administracive Faculty	Total Faculty
Full time				
___% time				
___% time				
___% time				
___% time				

38. On the average how do full time faculty member in the disciplines above allot their time over the following tasks?

Direct contact/ teaching	%	%	%	%
Preparation	%	%	%	%
Research	%	%	%	%
Administration	%	%	%	%
Private Practice	%	%	%	%
Public Service	%	%	%	%
Professional Development	%	%	%	%
Other (specify)	%	%	%	%
____________	%	%	%	%
Total	100	100	100	100

39. How many hours on the average does a full time faculty member work (including preparation at home) per week?

_____hours

40. How many of your faculty fall into the following categories?

	full time	part-time
senior tenured faculty		
junior nontenured faculty		
instructors		
other (please specify)		

41. What number of degreed faculty do you have? Answer in terms of the highest degree attained (please consider the D.C. degree the highest.)

__________ D.C. only

__________ D.C. and Ph.D or J.D.

__________ Ph.D or J.D.

__________ D.C. and M.A. or M.S.

__________ M.A. or M.S.

__________ D.C. and B.A. or B.S.

__________ B.A. or B.A.

__________ Other (please specify degrees)______________________________

____

42. Does your college have any volunteer (unsalaried) faculty?

☐ No

☐ Yes . . . if yes, how many?

__________ number of volunteers

42a. In what activities are they involved?

☐ teaching for _____ estimated hours per week

☐ research for _____ estimated hours per week

☐ administration for _____ estimated hours per week

☐ clinic care for _____estimated hours per week

☐ other activities for _____hours per week (please describe)

____

43. Please describe your school's educational program and facilities.

☐ free standing, no shared facilities or teaching programs (go to question 44)

☐ shares classroom or other facilities with another school or college but uses own teaching personnel (see 43a and b)

☐ shares facilities and instructors with another college (see 43a and b)

43a. What total amount does your college pay per year to use another school's(s') facilities?

$__________per year

43b. What schools does your college share facilities with?

Facilities	School, College, University where facility located

44. Does your college contract with other schools to have its D.C. students attend classes in Basic Sciences or other subjects?

☐ No

☐ Yes . . . see 44a, 44b, 44c.

44a. How many students attend these contracted classes?

__________students

44b. Which courses does your college contract for instruction with other college/universities? And what colleges do they use?

Courses	College, University, etc. Where Taught

44c. Does your college pay for these courses, or do your students pay tuition directly to other schools for these courses? (Please indicate if amount paid is the total amount paid or the amount per student)

$_____________ paid by your college per year (circle one: total / per student)

$_____________ tuition paid by students (circle one: total / per student)

SECTION III

These questions concern your tuition, school budget and physical facilities.

45. What costs are covered by your school's tuition charges? For example, does your college tuition cost include any of the following? or, do students usually purchase these items themselves from college bookstores? (Place an X in the appropriate column for your response)

Items	Included in Tuition/Lab Fees	Sold in Bookstores
Course Textbooks	____________	________
Lab coats/smocks	____________	________
Microscopes	____________	________
Other required equipment (please specify)		
____________	____________	________
____________	____________	________
____________	____________	________

46. What has been the average of your capital outlays for the last five (5) years?

$________ for 5-year average

46a. Please estimate or specify how these capital outlays were allocated among the following categories.

_____% new buildings or additions

_____% building remodeling

_____% office or lab equipment

_____% other (please specify) ____________________________

____

100 %

46b. What was the highest amount?

$ ________

46c. What was the lowest amount?

$ ________

47. What do you project the average amount of capital spending to be over the next five (5) years?

$ ________ average over the next 5 years

48. Does your college receive a substantial amount of donated goods or services which are not listed in question 41 on volunteer faculty and question 49 under endowment and gifts?

☐ No

☐ Yes . . . Could you please estimate the dollar value of these donated goods or services? $ ________

49. Could you please list your income and expenditures for the last audited year and for the coming school year?

INCOME		Audited 1977-78	Projected 1978-79
Tuition -	D.C. degree		
	C.A. degree		
	All other programs		
Fees -	D.C. degree		
	C.A. degree		
	All other programs		
State Support (specify source)			
________			

49. (Continued)

INCOME (Continued)	Audited 1977-78	Projected 1973-79
Federal Support (specify source)		
______________________________	________	________
Endowments and Gifts	________	________
Research	________	________
Clinic and Diagnostic Patient Care (Related Care)	________	________
Auxiliary Enterprises		
Bookstore	________	________
Cafeteria	________	________
Other	________	________
Other	________	________
TOTAL INCOME	________	________
EXPENDITURES		
General Administration	________	________
Instruction Costs (D.C. degree only)		
Faculty Salaries	________	________
Other Faculty Costs (fringe benefits, etc.)	________	________
Wages other than Faculty Salaries	________	________
Materials	________	________
Other Direct Costs	________	________

49. (Continued)

EXPENDITURES (Continued)	1977-78	1978-79
Clinic Costs		
Other instruction costs not associated with the D.C. degree (i.e., C.A. and other degree costs)		
Student Services		
Library		
Indirect Costs		
Operation and Maintenance of Plant		
Other General Expenditures		
Capital Outlay		
Auxiliary Enterprises		
TOTAL EXPENDITURES		

49a. Please divide your "Clinic Costs" into the following categories. (Do not include expenses already included under Instruction Costs above in question 49.)

	1977-78	1978-79
Total Clinic Costs (from 49)		
Faculty Salaries		
Other Faculty Cost (fringe benefits, etc.)		
Wages other than Faculty Salaries		
Materials		
Other Clinic Costs		

49b. What percentages of your college's income are restricted and unrestricted as to expenditure?

__________% restricted use

__________% unrestricted use

Thank you for your help in our study. Please return Booklet II to the college president.

If you have any questions about Booklet II, please call Tom von Kuster, Jr., at 612/333-5511.

Manpower in the Chiropractic Health Profession:
A Survey of Training Programs, Recent Graduates and Service Providers

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Chiropractic College Questionnaire

Booklet III:

Clinic Facility(ies)

Prepared and published by

facts

Foundation for the Advancement of Chiropractic Tenets and Science, 741 Brady St., Davenport, IA, 52808, 319/322-4447

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Instructions for Booklet III: Clinic Facility(ies)

This questionnaire, in three sections, is addressed to all chiropractic college programs.

Questions in Booklet III concern the college's clinic facility(ies). This should be completed by the clinic director.

In completing this section, answer each question by placing an "X" in the space provided to the left of the response you have chosen. Select the best single repsonse for each question.

Several questions in this survey ask you to provide specific dates or numbers. Please try to answer each question as accurately and completely as possible. However, if you do not have the data readily available, your best estimate will be sufficient.

When you have completed this booklet, return it to your college president as soon as possible so that he can return all three booklets to us. If you have any questions, please call Tom von Kuster, Jr., at 612/333-5511.

SECTION IV

The questions below concern your college clinic and are related to the clinic's services, charges and number of patient visits.

50. Does your school operate more than one clinic facility?

☐ No

☐ Yes . . . see 50a below.

50a. How many clinic facilities does your school operate?

__________ number of clinic facilities

51. Does your school work or contract with any D.C.s to place students as interns to learn clinic practice?

☐ No . . . go to question 52.

☐ Yes . . . see 51a and 51b below.

51a. How many D.C.s does your school contract with?

__________ number of D.C.s

51b. How much is the total budget for this? (If none, write "none.")

$ __________

52. Do your college's clinic facilities serve only to educate your D.C. degree students in clinic practice? (i.e., Do any D.C.s use the facilities for private practice not in conjunction with teaching students clinic practices? Or are clinic facilities used for postgraduate teaching by clinic faculty? Or does the clinic provide special services to area professionals in which students are not involved?)

☐ No . . . go to question 53.

☐ Yes . . . see 52a, 52b and 52c on the following page.

52a. What portion of all clinic revenues would be for D.C.s' private practice?

_______ %

52b. What portion of all clinic revenues would be related to post-graduate teaching?

_______ %

52c. What portion of all clinic revenues would be derived from special services to the professional? (X-rays, lab tests, medical/legal opinion, etc.)

_______ %

53. How many patient visits did your clinic(s) receive in a typical week in 1978?

_______ approximate number of visits per week

54. How many patient visits has your clinic(s) received in a typical week in 1979?

_______ approximate number of visits per week

54a. How many different patients do these visits represent? (Patients with multiple visits should be counted only once.)

_______ patients

54b. How many of these visits were from new patients (patients who had not used the college's clinic facilities before)?

_______ visits

54c. If more patients were available, how many more patient visits would you accept in a typical week?

_______ more patient visits

☐ none

☐ we have too many patients for our facilities, and would prefer to have fewer

55. Of the total weekly PATIENT VISITS you've indicated in question 52 on the previous page, what is the approximate percentage in the age, sex, race and referral source categories listed below and on the following page?

55a.	Age	% of patient visits by age
	17 years or under	______ %
	18 to 44 years	______ %
	45 to 64 years	______ %
	65 years or over	______ %
	TOTAL	100%

55b.	Sex	% of patient visits by sex
	Female	______ %
	Male	______ %
	TOTAL	100%

55c.	Race	% of patient visits by race
	White, not of Hispanic origin	______ %
	Black, not of Hispanic origin	______ %
	Hispanic	______ %
	American Indian or Alaskan Native	______ %
	Asian or Pacific Islander	______ %
	Other (specify) ______	______ %
	TOTAL	100%

55d. Referral Source	% of patient visits by referral source
Walk in (self referral)	________ %
Referred by D.C. student(s)	________ %
Referred by another patient of the clinic	________ %
Selected clinic/school from the telephone book	________ %
Referred by another D.C.	________ %
Referred by M.D. (please specify specialty(ies)	________ %
Referred by other health professionals (please specify type(s))	________ %
Some other source (please specify) ________________	________ %
TOTAL	100%

55e. In terms of the total weekly PATIENT VISITS you've indicated in question 54 above, what is the approximate percentage of patient visits you receive for the following conditions?

acute injury ________ %

maintenance/preventive care ________ %

chronic conditions ________ %

TOTAL 100%

55f. In terms of these same conditions, how many times on the average will these patients return to you for treatment during the next twelve months?

acute injury patients ________ times

maintenance/preventive care patients ________ times

chronic condition patients ________ times

56. Are you currently admitting any new patients to your clinic(s)?

☐ Yes . . . see 56a below.

☐ No . . . Why not? ____________________________________

____

56a. If yes, how long on the average does a new patient have to wait for an appointment to receive a routine examination?

☐ One day or less

☐ Two days

☐ Three days to a week

☐ Longer than a week

57. A number of chiropractic service offerings are listed below. Please indicate whether or not your clinic(s) presently offers these services to its patients, and then estimate how frequently each service is performed in a typical week.

Services:	57a. Do you offer the service to your patients?				57b. How many times is the service performed in a typical week?
X-ray Services					
1. Full spine	☐	Yes	☐	No	____times/week
2. Comprehensive area views	☐	Yes	☐	No	____times/week
3. Limited area views	☐	Yes	☐	No	____times/week
4. Extremities	☐	Yes	☐	No	____times/week
5. Chest	☐	Yes	☐	No	____times/week
Laboratory Services/Tests					
6. Urinalysis	☐	Yes	☐	No	____times/week
7. Routine blood count	☐	Yes	☐	No	____times/week
Physical Examination					
8. New patient	☐	Yes	☐	No	____times/week
9. Old patient - routine	☐	Yes	☐	No	____times/week
10. Old patient - other than routine	☐	Yes	☐	No	____times/week

Services:	57a. Do you offer the service to your patients?	57b. How many times is the service performed in a typical week?
Office Visit/Counseling		
11. Psychological	☐ Yes ☐ No	____times/week
12. Dietary	☐ Yes ☐ No	____times/week
13. Hygenic	☐ Yes ☐ No	____times/week
14. Exercise routine/development	☐ Yes ☐ No	____times/week
Office Visit/Adjustment		
15. Spinal adjustment(s)	☐ Yes ☐ No	____times/week
16. Extremity adjustment(s)	☐ Yes ☐ No	____times/week
17. Pressure point or reflex technics	☐ Yes ☐ No	____times/week
Office Visit/Physiotherapy		
18. Traction	☐ Yes ☐ No	____times/week
19. Infrared	☐ Yes ☐ No	____times/week
20. Ultra sound	☐ Yes ☐ No	____times/week
21. Diathermay	☐ Yes ☐ No	____times/week
22. Moist heat hydrocollator	☐ Yes ☐ No	____times/week
23. Ice/cold packs	☐ Yes ☐ No	____times/week
24. Low volt electrotherapy	☐ Yes ☐ No	____times/week
25. Ultra violet	☐ Yes ☐ No	____times/week
26. Whirlpool baths	☐ Yes ☐ No	____times/week
27. Massage (vibrator)	☐ Yes ☐ No	____times/week
Miscellaneous Services		
28. Colon therapy	☐ Yes ☐ No	____times/week
29. Acupunture/acupressure	☐ Yes ☐ No	____times/week
30. Inhalation/oxygen therapy	☐ Yes ☐ No	____times/week
31. Casts	☐ Yes ☐ No	____times/week

Products:	57a. Do you offer these products to your patients?		57b. How many times is this type of product sold in a typical week?
32. Vitamins/other diet	☐ Yes	☐ No	____times/week
33. Supports/braces	☐ Yes	☐ No	____times/week

58. Are there any services listed on the preceding two pages which you are currently offering to your patients but which you did not offer five years ago?

☐ Yes . . . see 58a below.

☐ No

58a. If yes, which services are they? Indicate the number of the service(s) (1 to 30) from the previous two pages.

____

____

59. Again referring to the service list on the preceding two pages, or other services, please list any services in which you do not allow students to assist/participate at your clinic(s).

____

____

____

SECTION V

This last section deals with the fees which your clinic(s) charges its patients and is critical for the purposes of our study. Your cooperation in fully completing this portion of the survey will add significantly to the value which this research has for the entire profession, and through the Congress, the American public.

60. Listed below are eleven (11) services frequently offered by D.C.s. Please indicate the average or usual charges (fees) for these services over the three time periods requested.

What were your fees for the following services?

Services:	60a. Last week?	60b. A year ago? (during 1978)	60c. 5 years ago? (during 1974)
X-ray Services			
1. Full spine (14 x 36 AP & Lat)	$ ______	$ ______	$ ______
2. Cervicals - limited (3 views)	______	______	______
3. Lumbrosacral - limited (AP & Lat)	______	______	______
Laboratory Services/Tests			
4. Urinalysis (including microscopic)	______	______	______
5. Complete blood count (CBC)	______	______	______
Physical Examination			
6. Routine examination of a new patient, including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	______	______	______

59. (continued from the previous page)

What were your fees for the following services?

Services:	60a. Last week?	60b. A year ago? (during 1978)	60c. 5 years ago? (during 1974)
Physical Examinations (cont.)			
7. Routine examination of an established patient for a new illness	$ ________	$ ________	$ ________
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	$ ________	$ ________	$ ________
Office Visits for Follow-up Care			
9. Office visit/chiropractic adjustment(s)	$ ________	$ ________	$ ________
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	$ ________	$ ________	$ ________
11. Each additional 15 minutes of doctor's time required over and above routine treatment	$ ________	$ ________	$ ________

Thank you for your help in our study.

Your responses to the questionnaire will remain confidential. No data which permits identification with your responses will be released for any purpose.

Please return the questionnaire in the postage-paid envelope which has been provided. If the return envelope has been lost, please mail the questionnaire to:

FACTS
741 Brady Street
Davenport, IA 52808

Thank you for your help in our study. Please return Booklet III to the college president.

If you have any questions about Booklet III, please call Tom von Kuster, Jr., at 612/333-5511.

facts

Dear Doctor of Chiropractic:

The Health Resource Administration, Department of Health, Education, and Welfare is undertaking for the first time a congressionally mandated study of chiropractic in the United States. The attached survey questionnaire is one portion of that study and requests important information which only members of the profession such as yourself can provide.

Perhaps you are aware of or have participated in other recent surveys of the profession sponsored by either the American Chiropractic Association (ACA) or the International Chiropractors Association (ICA). While a few of the following questions are similar to those in recent surveys, the majority are not. Due to privacy controls, however, we are unable to extract from past surveys those reponses needed to compliment this survey's newly added questions.

We ask your voluntary cooperation in completing this questionnaire . . . returning it as soon as possible. The larger the percentage of returns the better we will be able to assess the current status of the practice of chiropractic and accurately report these findings to Congress.

Your response will be kept completely confidential. Please do not identify yourself anywhere on the survey or on the return envelope. Your answers will be grouped with others to provide a data base for analysis in this national, profession-wide study.

An advisory group representing wide professional cooperation for the study has been organized. We feel that the entire profession of chiropractic can benefit significantly from the results obtained from this survey. Your time and effort in carefully answering each question is genuinely appreciated. Thank you.

Sincerely,

JF McAndrews

Dr. J. F. McAndrews
Project Director, FACTS

Dr. Joseph Mazzarelli President, ICA and FACTS	Dr. Harry Swanson Gov., District 6, ACA	Dr. Ed Velie Statistician, ACA
Dr. Vern Webster, President Federation of Chiropractic Licensing Boards	Dr. Jack Wilson Alabama Chiropractic Assn.	Dr. John Wolfe President Northwestern College of Chiropractic

Foundation for the Advancement of Chiropractic Tenets and Science, Suite 800, 1901 L St., N.W., Washington, D.C. 20036, 202/659-6476

OMB 68-578055
6-79

Manpower in the Chiropractic Health Profession:

A Survey of Training Programs, Recent Graduates and Service Providers

Service Providers

Prepared and published by

ts facts facts

Foundation for the Advancement of Chiropractic Tenets and Science

About FACTS

FACTS is a private, non-profit research foundation established to encourage and support research in the chiropractic sciences and assist and support colleges of chiropractic.

FACTS was founded in 1977 by the International Chiropractors Association (ICA), a professional association organized in 1926.

In October, 1977, FACTS was awarded a research contract from the Department of Health, Education and Welfare for a 24-month study of the supply of and demand for chiropractic services in the United States. The study fulfills the legislative mandate in Section 903 of the "Health Professions Educational Assistance Act" (P.L. 94-484) which requires a report to Congress on chiropractica service supply and demand.

Your responses to the questionnaire will remain completely confidential. No data which permits identification with your responses will be released for any purpose. Please do not identify yourself anywhere on the questionnaire. Identification numbers on the questionnaires are used only to follow-up and survey non-respondents. The mailing list will be destroyed by FACTS once the survey portion of the project is complete.

After completing the questionnaire, please return the questionnaire in the postage-paid envelope which has been provided. If the return envelope has been lost, please mail the questionnaire to Sipple, von Kuster and Associates, a Minneapolis survey research and consulting firm whose address is on the inside back cover.

PRIVACY ACT STATEMENT

The Privacy Act of 1974 requires that all potential survey participants be provided with the following information:

1. Information for this study is being collected by authority of Section 903 of the Health Professions Educational Assistance Act.
2. Participation in this study is strictly voluntary. You are not required to respond to the survey.
3. The objective of the study is to provide information which can be used both congressionally and administratively to assess the propriety of various funding decisions concerning the provision of federal aid for chiropractic health manpower training. The purpose of this project is to address four (4) major issues in manpower research. They are as follows:
   - The average annual cost of education for chiropractic students, describing how and why this cost may vary from program to program.
   - The demand for chiropractic services.
   - The adequacy of the supply of chiropractic personnel to meet the service demand.
   - The cost of chiropractic services including the trends in service charges over the past five years.
4. Information collected in the course of this study will be analyzed in group form. No individual will be able to be identified from the aggregate data. Individual identity will not be revealed.
5. Because participation in this study is purely voluntary, no action will be taken if you do not choose to participate.

Thank you for your help in our study.

Your responses to the questionnaire will remain confidential. No data which permits identification with your responses will be released for any purpose.

Please return the questionnaire in the postage-paid envelope which has been provided. If the return envelope has been lost, please ma [illegible] questionnaire to:

FACTS Study of Chiropractic
Sippel/von Kuster & Associates
814 Midland Bank Building
Minneapolis, Minnesota 55401

INSTRUCTIONS

Answer each question by placing an "X" in the boxes provided to the left of the response you have chosen. Select the best single response for each question. Several questions in this survey ask you to provide specific dates or numbers. If this information is not readily available, your best estimate will be sufficient. Please try to answer each question as accurately and completely as possible. Begin with Section I below.

SECTION I – Demographic Information/Occupational Status

For background purposes, please answer the following questions about yourself and your present occupational status.

1. Date of Birth

Month	Day	Year
______	______	19 __ __
5 6	7 8	9 10

2. Sex:
11

1 ☐ Male 2 ☐ Female

3. How would you describe yourself? (Check one)
12

- 1 ☐ White, not of Hispanic origin
- 2 ☐ Black, not of Hispanic origin
- 3 ☐ Hispanic
- 4 ☐ American Indian or Alaskan Native
- 5 ☐ Asian or Pacific Islander

4. From which college did you receive your D.C. degree?
13,14

______________________ Chiropractic College

5. In which states are you currently licensed to practice chiropractic? (If none, write "none" in the first blank space.)
15-30

________, ________, ________, ________
15, 16 17, 18 19, 20 21, 22

________, ________, ________, ________
23, 24 25, 26 27, 28 29, 30

6. Are your currently practicing chiropractic? That is, on either a full or part-time basis, do you offer chiropractic services to the public and receive fees from your patients or third-party payers?
31

1 ☐ Yes . . . PROCEED DIRECTLY TO SECTION II, PAGE 2, OF THIS QUESTIONNAIRE.

2 ☐ No . . . please answer the remaining questions, 6a-6e.

6a. Which of the following describes your present occupational status:
32

1 ☐ retired from chiropractic practice

2 ☐ active in the field of chiropractic in some other professional capacity (teaching in a chiropractic college, research, administration, or professional association activity, etc.)

3 ☐ employed outside the field of chiropractic (please specify) ______________
33,34
____

4 ☐ other (please explain) ______________
35,36
____

6b. When (what year) were you last active in chiropractic practice?

19 __ __
37 38

6c. How many years did you practice chiropractic after graduation from chiropractic college?

__ __ number of years in practice
39 40

6d. Why did you leave your practice? Which of the following reasons best describes your reason for leaving?
41

1 ☐ voluntary retirement for reasons of age and/or health

2 ☐ involuntarily left practice because the demand for chiropractic services could not financially support a practice (please elaborate, if possible)

____
____
42,43

3 ☐ some other reason (please explain) ______________
____
44,45

6e. Would you consider reentering active practice within the next five years?
46

1 ☐ Yes . . . Do you currently have any plans to do so?

47 ☐ Yes ☐ No When? ______________
1 2 48

Why? ______________
49-52
____

2 ☐ No . . . Why not? ______________
53-56
____

IF YOU ARE NOT CURRENTLY PRACTICING, it will not be necessary for you to complete any other sections of this questionnaire. Please put the survey form in the preaddressed return envelope and mail promptly. Thank you for your time and cooperation.

SECTION II – Practice Characteristics

The questions below request information about your practice and its characteristics – where the practice is located, what form of practice it is, how many employees you have, how you spend your time, what gross revenues were, and whether there is a need in your area for more D.C.s. This data will be aggregated to describe chiropractic practice nationally.

7. When (what year) did you begin to practice?

19 __ __
57 58

8. Where is your practice now located? Please provide the 5-digit ZIP Code for your office address and the name of the county where your primary practice is located.

__ __ __ __ __ your office Zip Code
59 60 61 62 63

____________ county
64-72

8a. Do you use multiple office locations?
73

1 ☐ Yes . . . How many? __ __ office locations
74 75
2 ☐ No

9. Describe the area in which your primary practice is located? (Check one)
76

1 ☐ small town (less than 2,500 population)
2 ☐ large town (between 2,500 and 24,999)
3 ☐ small city (between 25,000 and 99,999)
4 ☐ large city (over 100,000 population)
5 ☐ suburb of a large city which has 100,000 or more population

9a. If your primary practice is located in an area of less than 25,000 population, how far is the nearest city of over 25,000 population?

__ __ __ miles
5 6 7

1 ☐ adjacent to a city of over 25,000 population
8

10. Do you have a listing for your practice in the YELLOW PAGES of your local telephone directory?
9

1 ☐ Yes
2 ☐ No . . . Why not? ____________
10,11
____

11. What type of practice do you have?
12

1 ☐ private (solo practice) . . . see 11a below
2 ☐ associate/commission practice . . . see 11a below
3 ☐ group/partnership practice . . . see 11a and 11b below.
4 ☐ some other type of practice . . . see 11a and 11b below (please describe) ____________
13,14

11a. Which of the following describes the legal form of your practice?
15

1 ☐ sole proprietorship
2 ☐ professional corporation (P.C.)
3 ☐ partnership
4 ☐ professional association (P.A.)
5 ☐ other (please specify) ____________
16,17

11b. If group/partnership how many D.C.s are involved, including yourself?

__ __ number in group
18 19

12. Are you recognized as a specialist in your field (qualified by postgraduate study and examination to perform additional examination and consultory procedures)?
20

1 ☐ Yes . . . see 12a below 2 ☐ No

12a. If yes, which specialty group(s)? ____________
21-26
____

13. How well informed do you feel the general public is about chiropractic in your primary practice area? Check the box or circle the number in the space that best describes your perception of public attitude towards chiropractic.

13a. How well informed is the public in your practice area generally about the availability of D.C.s?
27

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /

Not well informed — Moderately well informed — Very well informed

13b. What proportion of the public in your practice area do you believe is at least moderately well informed (those who would have a score of 4 or higher in question 13a above) about the availability of D.C.s in your area?
28

1 ☐ 0-25% 3 ☐ 51-75%
2 ☐ 25-50% 4 ☐ 76-100%

13c. How well informed is the public in your practice area about the services offered by D.C.s?
29

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /

Not well informed — Moderately well informed — Very well informed

13d. What proportion of the public in your practice area is at least moderately well informed (those who would have a score of 4 or higher in 13c above) about the services offered by D.C.s?
30

1 ☐ 0-25% 3 ☐ 51-75%
2 ☐ 26-50% 4 ☐ 76-100%

14. Do you employ other office personnel to assist you with your practice?
31

1 ☐ Yes . . . see 14a below 2 ☐ No

14a. If yes, how many full time (35 or more hours) and part-time (less than 35 hours) office personnel do you employ? (Personnel who are not nurses or interns but are directly involved in patient care and treatment should be classified as chiropractic assistants.)

	Full time	Part-time
Chiropractic Assistants (college trained)	__ __ 32 33	__ __ 34 35
Chiropractic Assistants (trained on-the-job)	__ __ 36 37	__ __ 38 39
LPN or RN	__ __ 40 41	__ __ 42 43
Chiropractic Intern	__ __ 44 45	__ __ 46 47
Secretary/Receptionist	__ __ 48 49	__ __ 50 51
Other (please specify) ____________ 56-59	__ __ 52 53	__ __ 54 55

14b. Can you estimate how many more patients per hour are you or would you be able to see using a Chiropractic Assistant versus not using a Chiropractic Assistant.
60

1 ☐ no increase in patients per hour
__ __ number of patients more per hour
61 62
2 ☐ more patients per hour, but unable to estimate the number

15. Please estimate the number of hours per week you usually spend in the following chiropractic activities.

___ ___ hours patient care
63 64
___ ___ hours other office work related to patient care
65 66
___ ___ hours teaching in chiropractic college
67 68
___ ___ hours research (including professional reading/writing)
69 70
___ ___ hours administration in chiropractic college
71 72
___ ___ hours national, state or local professional organization
73 74
___ ___ hours other chiropractic activity (please specify)
75 76
____
5-8
___ ___ Total hours per week
77 78

15a. Estimate the number of hours of patient care you regularly provide during evenings and weekends.

___ ___ hours evenings (after 5 p.m.)
9 10
___ ___ hours weekends
11 12

15b. How many weeks did you practice chiropractic in 1978? (exclude vacations etc.)

___ ___ weeks
13 14

15c. How many weeks do you plan on practicing in 1979?

___ ___ weeks
15 16

15d. Are you practicing less (handling fewer patients) than you would prefer because of a shortage of patients?
17

1 ☐ No . . . go to question 16 2 ☐ Yes . . . see below

15e. How many more weeks would you be willing to practice in 1979 if more patients were available?

___ ___ more weeks than response in 15c
18 19

15f. Estimate how many more hours per week of patient care you could provide if more patients were available.

___ ___ more hours per week of patient care
20 21

15g. Would you hire a Chiropractic Assistant?
22

1 ☐ Yes 2 ☐ No

16. Please estimate how many other D.C.s are currently practicing in the county where your primary office is located.

______ estimated number of practicing D.C.s in county of primary practice location
23-26

16a. What percentage of your patients come from an area other than the county of your primary office location?
27

1 ☐ 0%
2 ☐ 1-10%
3 ☐ 11-20%
4 ☐ 31-40%
5 ☐ 41-50%
6 ☐ more than 50% (please specify the approximate percentage ______ %
28 29 30

16b. Could more D.C.s be readily employed in the following areas?

31 State where your office is located:

1 ☐ Yes . . . How many? __________ more D.C.s
32-34
1 ☐ Unable to estimate
35
2 ☐ No, present number is adequate
3 ☐ No, presently too many practicing . . .
How many too many? ________ too many D.C.s
32-34
1 ☐ Unable to estimate
35
4 ☐ Don't know

36 County in which your primary office is located:

1 ☐ Yes . . . How many? __________ more D.C.s
37-39
1 ☐ Unable to estimate
40
2 ☐ No, present number is adequate
3 ☐ No, presently too many practicing . . .
How many too many? ________ too many D.C.s
37-39
1 ☐ Unable to estimate
40
4 ☐ Don't know

17. What were the total or gross annual receipts/revenue before deducting expenses of your practice in 1978? (If part of a group/partnership, answer only in terms of your patient revenues.)
41

1 ☐ less than $10,000
2 ☐ $10,000-$19,999
3 ☐ $20,000-$29,999
4 ☐ $30,000-$39,999
5 ☐ $40,000-$49,999
6 ☐ $50,000-$74,999
7 ☐ $75,000-$99 999
8 ☐ $100,000-$149,000
9 ☐ $150,000-$200,000
0 ☐ over $200,000 (please specify the approximate amount round to nearest $1,000)

$ ______________
42-45

17a. Please estimate the percent of gross revenue you receive from the following sources:

___ ___ % cash from patient
46 47
___ ___ % Health and Accident insurance
48 49
___ ___ % Medicare
50 51
___ ___ % Medicaid
52 53
___ ___ % Workmen's Compensation (state and federal)
54 55
___ ___ % other
56 57
100%

18. Do you have any plans to cut back on your work load during the next five years in terms of:

58 Fewer weeks worked per year:

1 ☐ Yes . . . see 18a below 2 ☐ No

59 Fewer patient visits per week:

1 ☐ Yes . . . see 18a below 2 ☐ No

18a. If yes, why? ______________________
60-63
____

19. Do you plan to leave active practice completely within the next five years?
64

1 ☐ Yes . . . see 19a below 2 ☐ No

19a. If yes, why? ______________________
65-68
____

20. In terms of your own practice, which of the following factors would likely result in an increase in the demand for your services over the next five years? (Check all that apply)
69-77

- ☐ expansion in kinds of services reimbursable by third-party payors
- ☐ increase in amount third-party payor will reimburse per service delivered
- ☐ greater public education about chiropractic
- ☐ wider scope of practice for chiropractic (change in state laws)
- ☐ increased number of D.C.s practicing in your area
- ☐ decreased number of D.C.s practicing in your area
- ☐ increasing acceptance/prestige of the profession among other health professions
- ☐ a national definition of D.C. services or a more consistent scope of practice from state to state
- ☐ some other factor (please specify)__________

5-8 5-8

____

21. What size population base is required to provide enough patients to support one D.C. in an average practice? Please specify the average practice in terms of gross revenues per year.

$________ average practice annual gross revenues
9-15

________ number of people needed to support average practice
16-23

SECTION III – Patient Characteristics and Patient Care Services

In this section we are interested in the number and type of patients you serve and what types of services they require.

22. Approximately how many PATIENT VISITS did you have in a typical week in 1978?

__ __ __ __ approximate number of visits per week in 1978
24 25 26 27

23. Approximately how many PATIENT VISITS do you presently have in a typical week?

__ __ __ __ approximate number of visits per week
28 29 30 31

23a. How many different patients do these visits represent? (Patients with multiple visits should be counted only once.)

__ __ __ __ patients
32 33 34 35

23b. How many of these were from new patients?

__ __ __ __ new patients
36 37 38 39

23c. How many more or fewer patient visits would you prefer in a typical week, if any?
40

1 __ __ __ __ more patient visits
41 42 43 44

2 __ __ __ __ fewer patient visits
45 46 47 48

3☐ no change in number of patient visits

23d. On the average, how many patient visits do you have in an hour's time?

__ __ patient visits an hour
49 50

24. Of the total weekly PATIENT VISITS you've indicated in Question 23 above, what is the approximate percentage in the age, sex, referral source and race categories listed below and on the following page?

24a. Age	% of patient visits by age
17 years or under	__ __% 51 52
18 to 44 years	__ __% 53 54
45 to 64 years	__ __% 55 56
65 years or over	__ __% 57 58
TOTAL	100%

24b. Sex	% of patient visits by sex
male	__ __% 59 60
female	__ __% 61 62
TOTAL	100%

24c. Referral Source	% of patient visits by referral source
walk in (self referral)	__ __% 63 64
referred by another patient of yours	__ __% 65 66
selected your name from telephone book	__ __% 67 68
referred by another D.C.	__ __% 69 70
referred by M.D.s (please specify specialty(ies)) ____________ 77,78,5	__ __% 71 72
referred by other health professionals (please specify type(s)) ____________ 6,7,8,	__ __% 73 74
some other source (please specify) ____________ 9,10,11	__ __% 75 76
TOTAL	100%

24d. Race	% of patient visits by race
White, not of Hispanic origin	__ __% 12 13
Black, not of Hispanic origin	__ __% 14 15
Hispanic	__ __% 16 17
American Indian or Alaskan Native	__ __% 18 19
Asian or Pacific Islander	__ __% 20 21
TOTAL	100%

24e. In terms of the total weekly PATIENT VISITS you've indicated in Question 23 above, what is the approximate percentage of patient visits you receive for the following conditions?

acute injury __ __ % 22 23

maintenance/preventive care __ __ % 24 25

chronic conditions __ __ % 26 27

24f. In terms of these same conditions, how many times on the average will these patients return to you for treatment during the next 12 months?

acute injury __ __ times 28 29

maintenance/preventive care __ __ times 30 31

chronic conditions __ __ times 32 33

25. 34 Are you currently admitting any new patients to your practice?

1 ☐ Yes . . . see 25a below

2 ☐ No . . . Why not? ______________________ 35-38

____

25a. 39 If yes, how long on the average does a new patient have to wait for an appointment to receive a routine examination?

1 ☐ One day or less
2 ☐ Two days
3 ☐ Three days to a week
4 ☐ Longer than a week

Patient Care Services

26. A number of chiropractic service offerings are listed below and on the following page. Please indicate whether or not you presently offer these services to your patients, and then estimate how frequently each service is performed in a typical week. Services performed by auxiliary personnel should be included in these responses.

Services:	26a. Do you offer the service to your patients?	26b. How many times is the service performed in a typical week?
X-ray Services		
1. Full spine	40 ☐ Yes 1 ☐ No 2	__ __ __ times/week 41 42 43
2. Comprehensive area views	44 ☐ Yes 1 ☐ No 2	__ __ __ times/week 45 46 47
3. Limited area views	48 ☐ Yes 1 ☐ No 2	__ __ __ times/week 49 50 51
4. Extremities	52 ☐ Yes 1 ☐ No 2	__ __ __ times/week 53 54 55
5. Chest	56 ☐ Yes 1 ☐ No 2	__ __ __ times/week 57 58 59
Laboratory Services/Tests		
6. Urinalysis (in your office)	60 ☐ Yes 1 1 ☐ No 2	__ __ __ times/week 61 62 63
7. Routine blood count (in your office)	64 ☐ Yes 1 ☐ No 2	__ __ __ times/week 65 66 67
Physical Examination		
8. New patient	68 ☐ Yes 1 ☐ No 2	__ __ __ times/week 69 70 71
9. Old patient – routine	72 ☐ Yes 1 ☐ No 2	__ __ __ times/week 73 74 75
10. Old patient – other than routine	5 ☐ Yes 1 ☐ No 2	__ __ __ times/week 6 7 8
Office Visit/Counseling		
11. Psychological	9 ☐ Yes 1 ☐ No 2	__ __ __ times/week 10 11 12
12. Dietary	13 ☐ Yes 1 ☐ No 2	__ __ __ times/week 14 15 16
13 Hygenic	17 ☐ Yes 1 ☐ No 2	__ __ __ times/week 18 19 20
14. Exercise routine/development	21 ☐ Yes 1 ☐ No 2	__ __ __ times/week 22 23 24

26. Patient Care Services (continued)

Office Visit/Adjustment

15.	Spinal Adjustment(s)	25 ☐ Yes 1	☐ No 2	__ __ __ 26 27 28	times/week
16.	Extremity Adjustment(s)	29 ☐ Yes 1	☐ No 2	__ __ __ 30 31 32	times/week
17.	Pressure point or reflex techniques	33 ☐ Yes 1	☐ No 2	__ __ __ 34 35 36	times/week

Office Visit/Physiotherapy

18.	Traction	37 ☐ Yes 1	☐ No 2	__ __ __ 38 39 40	times/week
19.	Infrared	41 ☐ Yes 1	☐ No 2	__ __ __ 42 43 44	times/week
20.	Ultra sound	45 ☐ Yes 1	☐ No 2	__ __ __ 46 47 48	times/week
21.	Diathermy	49 ☐ Yes 1	☐ No 2	__ __ __ 50 51 52	times/week
22.	Moist heat hydrocollator	53 ☐ Yes 1	☐ No 2	__ __ __ 54 55 56	times/week
23.	Ice/cold packs	57 ☐ Yes 1	☐ No 2	__ __ __ 58 59 60	times/week
24.	Low volt electrotherapy	61 ☐ Yes 1	☐ No 2	__ __ __ 62 63 64	times/week
25.	Ultra violet	65 ☐ Yes 1	☐ No 2	__ __ __ 66 67 68	times/week
26.	Whirlpool baths	69 ☐ Yes 1	☐ No 2	__ __ __ 70 71 72	times/week
27.	Massage (virbator)	73 ☐ Yes 1	☐ No 2	__ __ __ 74 75 76	times/week

Miscellaneous Services

28.	Colon therapy	5 ☐ Yes 1	☐ No 2	__ __ __ 6 7 8	times/week
29.	Acupuncture/acupressure	9 ☐ Yes 1	☐ No 2	__ __ __ 10 11 12	times/week
30.	Inhalation/oxygen therapy	13 ☐ Yes 1	☐ No 2	__ __ __ 14 15 16	times/week
31.	Casts	17 ☐ Yes 1	☐ No 2	__ __ __ 18 19 20	times/week

Products

32.	Vitamins/other diet supplements	21 ☐ Yes 1	☐ No 2	__ __ __ 22 23 24	times/week
33.	Supports/braces	25 ☐ Yes 1	☐ No 2	__ __ __ 26 27 28	times/week

27. Referring to the service list on the preceding two pages, please list in order of their importance the five (5) services for which the employment of assistant personnel is most useful to you. Indicate by number below. If you do not employ assistants in patient care and treatment, write "none" in the 1st blank.

1st: ______ (29, 30) 2nd: ______ (31, 32) 3rd: ______ (33, 34) 4th: ______ (35, 36) 5th: ______ (37, 38)

SECTION IV – Service Charges

This last section deals with the fees which you charge your patients and is critical for the purposes of our study. Your cooperation in fully completing this portion of the survey will add significantly to the value which this research has for the entire profession and, through the Congress, the American public.

8. Listed below are eleven (11) services offered by D.C.s. Please indicate the average or usual charges (fees) for these services over the three time periods requested.

What were your fees for the following services?

Services	28a. Last week?	28b. A year ago? (during 1978)	28c. 5 years ago? (during 1974)
X-ray Services			
1. Full spine (14 x 36 AP & Lat)	$ ________ 39-42	$ ________ 43-46	$ ________ 47-50
2. Cervicals – limited (3 views)	________ 51-54	________ 55-58	________ 59-62
3. Lumbosacral – limited (AP & Lat)	________ 63-66	________ 67-70	________ 71-74
Laboratory Services/Tests			
4. Urinalysis (including microscopic) 36 (Check here for in your office ☐1; or here for outside lab ☐2)	________ 75-78	________ 5-8	________ 9-12
5. Complete blood count (CBC) 37 (Check here for in your office ☐1; or here for outside lab ☐2)	________ 13-16	________ 17-20	________ 21-24
Physical Examination			
6. Routine examination of a new patient including history, physical examination and diagnosis/conclusions (routine procedure used for most patients but not including the X-ray and laboratory services)	________ 25-28	________ 29-32	________ 33-36
7. Routine examination of an established patient for a new illness	________ 37-40	________ 41-44	________ 45-48
8. Comprehensive physical examination of a patient with extensive injuries and/or multiple complaints (not including X-ray or laboratory services)	________ 49-52	________ 53-56	________ 57-60
Office Visits for Follow-Up Care			
9. Office visit/chiropractic adjustment(s)	________ 61-64	________ 65-68	________ 69-72
10. Office visit/single physical therapy technique in conjunction with chiropractic adjustment	________ 73-76	________ 5-8	________ 9-12
11. Each additional 15 minutes of doctor's time required over and above routine treatment	________ 13-16	________ 17-20	________ 21-24

29. One final question, is there a need for more chiropractors to serve the following population segments in the county in which your primary practice is located?

Population Segment	Is there a need for more chiropractors?		
25 Males	1☐ Yes	2☐ No	3☐ Don't know
26 Females	1☐ Yes	2☐ No	3☐ Don't know
27 People 17 years or under	1☐ Yes	2☐ No	3☐ Don't know
28 People 18 to 44 years	1☐ Yes	2☐ No	3☐ Don't know
29 People 45 to 64 years	1☐ Yes	2☐ No	3☐ Don't know
30 People 65 years or over	1☐ Yes	2☐ No	3☐ Don't know
31 White, not of Hispanic origin	1☐ Yes	2☐ No	3☐ Don't know
32 Black, not of Hispanic origin	1☐ Yes	2☐ No	3☐ Don't know
33 Hispanic	1☐ Yes	2☐ No	3☐ Don't know
34 American Indian or Alaskan Native	1☐ Yes	2☐ No	3☐ Don't know
35 Asian or Pacific Islander	1☐ Yes	2☐ No	3☐ Don't know

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Foundation for the Advancement of Chiropractic Tenets and Science
Washington, D.C.

OMB 68-576055
6-79

Manpower in the Chiropractic Health Profession:

A Survey of Training Programs, Recent Graduates and Service Providers

Graduate Follow-up

Prepared and published by

ts facts facts

Foundation for the Advancement of Chiropractic Tenets and Science

About FACTS

FACTS is a private, non-profit research foundation established to encourage and support research in the chiropractic sciences and assist and support colleges of chiropractic.

FACTS was founded in 1977 by the International Chiropractors Association (ICA), a professional association organized in 1926.

In October, [illegible] FACTS was awarded a research contract from the Department of Health, Education and Welfare for a 24-month study of the [illegible] and demand for chiropractic services in the United States. The study fulfills the legislative mandate in Section 903 of the Health Professions Educational Assistance Act (P.L. 94-484) which requires a report to Congress on [illegible] supply and [illegible]

Your responses to the questionnaire will remain completely confidential. No data which permits identification with your responses will be released for any purpose. Please do not identify yourself anywhere on the questionnaire. Identification numbers on the questionnaires are used only to follow-up and survey non-respondents. The mailing list will be destroyed by FACTS once the survey portion of the project is complete.

After completing the questionnaire, please return the questionnaire in the postage-paid envelope which has been provided. If the return envelope has been lost, please mail the questionnaire to Simple, von Kuster and Associates, a Minneapolis survey research and consulting firm whose address is on the inside back cover.

PRIVACY ACT STATEMENT

The Privacy Act of 1974 requires that all potential survey participants be provided with the following information:

1. Information for this study is being collected by authority of Section 903 of the Health Professions Educational Assistance Act.
2. Participation in this study is strictly voluntary. You are not required to respond to the survey.
3. The objective of the study is to provide information which can be used both congressionally and administratively to assess the propriety of various funding decisions concerning the provision of federal aid for chiropractic health manpower training. The purpose of this project is to address four (4) major issues in manpower research. They are as follows:
   - The average annual cost of education for chiropractic students, describing how and why this cost may vary from program to program.
   - The demand for chiropractic services.
   - The adequacy of the supply of chiropractic personnel to meet the service demand.
   - The cost of chiropractic services including the trends in service charges over the past five years.
4. Information collected in the course of this study will be analyzed in group form. No individual will be able to be identified from the aggregate data. Individual identity will not be revealed.
5. Because participation in this study is purely voluntary, no action will be taken if you do not choose to participate.

APPENDIX III

NON-RESPONDENT TELEPHONE SURVEY INTRODUCTION

Hello, my name is ______________. I am a research assistant in Minneapolis working on a survey which the Foundation for the Advancement of Chiropractic Tenets and Science (FACTS) is completing for the Congress and HEW. May I speak with Dr.________________. I have a few short questions for him (you). They will take about six or seven minutes to answer.
Repeat the same ideas to the Doctor plus:

1. He may have received one of our questionnaires this past year.
2. I should tell you that all responses are confidential and we will report only summary or aggregated results, no individual responses will be identified.
3. Does he have time now or can we call back (or can he call us collect) and when (get a time).

At this time try to find out if Dr.________________is still in active practice even if he (or his receptionist) wants us to call back.

NON-RESPONDENT SURVEY OF SERVICE PROVIDERS

1. Sex: 1___Male 2___Female (By name, or listen to determine)

2. Are you currently practicing chiropractic? That is, on either a full or part-time basis, do you offer chiropractic services to the public and receive fees from your patients or third-party payers?
   1___Yes 2___Yes, part time (Go on and complete the remainder of the survey)
   3___No If no, are you retired? 1___Yes 2___No
   (Go through #5 and stop) (Thank D.C. for his time)

3. From which college did you receive your D.C. degree? ____________

4. In how many states are you currently licensed to practice chiropractic? Number __________________(If none, write "none")
   (Thank retired D.C.s for their time.)

5. How many years have you spent in practice? Years ______
   (Or when did they start practicing?)

6. In what size town or city is your primary practice located?
   1___Small town (less than 2,500) 2___Large town (2,500 - 24,999)
   3___Small city (25,000 - 99,999) 4___Large city (over 100,000)
   5___Suburb of large city which has 100,000 or more population

7. What type of practice do you have?
   1___Private (solo)
   2___Associate/commission (Ask Question 7a)
   3___Group/partnership (Ask Question 7a)
   4___Some other type of practice Please describe________________

   (Ask Question 7a, if it is more than one D.C. practicing)

7a. If group/partnership, how many D.C.s are involved, including yourself? Number ________ (i.e., anything but solo)

8. Please estimate the total number of hours per week you spend in chiropractic activites, such as: Patient care, office work related to patient care, and other chiropractic activities such as teaching, research, or professional organization work.
   ASK: Total hours work/week including above _______________

9. How many weeks did you practice chiropractic in 1979? (Exclude vacations, etc) Weeks__________

The last two questions are optional, but they would be very helpful in interpreting study results.

10. Approximately how many PATIENT VISITS do you presently have in a typical week? Visits per week _____________

11. What is your fee for a routine examination of an established patient for a new illness? $_____________ (Stop) (Thank you)

NON-RESPONDENT TELEPHONE SURVEY INTRODUCTION

Hello, my name is ______________. I am a research assistant in Minneapolis working on a survey which the Foundation for the Advancement of Chiropractic Tenets and Science (FACTS) is completing for the Congress and HEW. May I speak with Dr.________________. I have a few short questions for him (you). They will take about six or seven minutes to answer.
Repeat the same ideas to the Doctor plus:

1. He may have received one of our questionnaires this past year.
2. I should tell you that all responses are confidential and we will report only summary or aggregated results, no individual responses will be identified.
3. Does he have time now or can we call back (or can he call us collect) and when (get a time).

At this time try to find out if Dr.________________is still in active practice even if he (or his receptionist) wants us to call back.

NON-RESPONDENT SURVEY OF RECENT GRADUATES

1. Sex: 1___Male 2___Female (Determine by name or voice)

2. Are you practicing now?
   1___Yes (If Yes, continue to Question 11)
   2___No longer, but was before (If No, proceed through Question 7, then Questions 12 through 15)
   3___Never (If never, proceed through Question 5, then 15 and 16)

3. When (month and year) did you receive your Doctor of Chiropractic degree?
   Month ___ 19___

4. Are you now licensed to practice chiropractic?
   1___Yes When (month and year) did you become licensed?
   Month ___ 19___
   2___No (If No, go to Question 15)

5. In how many states are you currently licensed to practice chiropractic? Number______ (If none, write in "none")

6. *When (month and year) did you begin to practice?
   Month ___ 19___ *Skip to 12 or 16 if needed.

7. In what size town is your practice located?
   1___Small town (less than 2,500) 2___Large town (2,500 - 24,999)
   3___Small city (25,000 - 99,999) 4___Large city (over 100,000)
   5___Suburb of a large city which has 100,000 or more population

8. What type of practice do you have?
   1___Private (solo) 2___Associate/commission
   3___Group/partnership 4___Other type of practice
   Specify________________________
   If group/partnership, how many D.C.s were involved, including yourself? Number in group_________

9. At this particular time, how well established do you feel your practice is? Circle the number on the line below that best describes how well established they feel their practice is. (Read the 3 main foils over the phone)

   / 1 / 2 / 3 / 4 / 5 /
   Not well established — Moderately well established — Very well established

NON-RESPONDENT SURVEY OF RECENT GRADUATES (continued)

10. Would you consider leaving active practice in the next five years?
1___No
2___Yes...Do you currently have plans to do so? (Stop)
(Thank you)

Start again for those no longer practicing.

11. Describe the area in which you reside. (Check one)
1___Small town (less than 2,500) 2___Large town (2,500 - 24,999)
3___Small city (25,000 - 99,999) 3___Large city (over 100,000)
4___Suburb of a large city which has 100,000 or more population

12. When (month and year) did you leave the practice of chiropractic?
Month______ 19____

13. What type of practice did you have?
1___Private (solo) 2___Associate/commission
3___Group/partnership 4___Some other type of practice
Specify____________________

14. Would you consider reentering active practice within the next 5 years?
1___Yes...Do you currently have plans to do so? 1___Yes 2___No
When?________
2___No (Stop) (Thank you)

15. Describe the area in which you reside (Check one)
1___Small town (less than 2,500) 3___Large town (2,500 - 24,999)
3___Small city (25,000 - 99,999) 4___Large city (over 100,000)
5___Suburb of a large city which has 100,000 or more population

16. Which of the following factors was most important regarding your decision not to enter active practice? (Check one)
(Allow them time to answer the suggestions)
1___Not yet received a license to practice
2___Inability to obtain sufficient capital to establish practice
3___Other/better opportunities within the chiropractic profession (such as teaching, college administration, work in a professional association, etc.)
4___Too many D.C.s already had established practices in the area
5___Other/better opportunities outside the chiropractic profession
6___Too few chiropractic patients available in the area
7___Personal or health reasons
8___Other reasons Specify______________________________
(Stop) (Thank you)

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APPENDIX IV

SAMPLING PLANS AND RESPONSE RATES

VOLUME II

APPENDIX IV

SAMPLING PLANS AND RESPONSE RATES

Purposes of the Data Collection Efforts

There were five main purposes to the survey of active Doctors of Chiropractic in practice more than two years (service providers) and recent graduates of chiropractic colleges. Briefly, these included (1) developing an estimate of the number of active D.C.s in the United States, (2) gathering descriptive data regarding D.C.s and their practice, (3) estimating the number of patient visits received by D.C.s, (4) describing the services offered by D.C.s and (5) developing cost of service information for this past year (1979) and in prior years (1978 and 1974).

Creating a Universe of D.C.s and Sample Selection

A major task of this study was ennumerating a universe of all potentially active D.C.s in the United States. It was decided that the best method was to use lists from these sources: state license lists and/or association membership rosters from all fifty states and the District of Columbia and association membership lists for the two major chiropractic associations. The state license lists included over 29,000 names and addresses. These were cross-checked for duplicates with other states and association membership lists. This resulted in a list of just over 23,000 names. From this list all recent graduates surveyed were removed, resulting in the universe of 21,383 licensed Doctors of Chiropractic who had been out of college at least two years before December 1978. These were considered the most accurate available universe of D.C.s either practicing or available to enter the labor market force to provide chirpractic services ever compiled. From this universe of Doctors of Chiropractic in the United States a random sample representing a cross-section of the total was selected.

Unlicensed but trained D.C.s were not sampled for two reasons: first, it is believed that this group cannot readily enter the chiropractic practice because current National Boards and license examination requirements in nearly all states would be too difficult for all but recent graduates; and second, this group is not locatable.

A Service Provider Sample for State-by State Analysis

The original goals for the study expressed by the Health Resources Administration (and the proposal) emphasized the desirability of making state-by-state comparisons among D.C.s practicing more than two years. The sample was stratified by state, and enough D.C.s were chosen in each state to achieve a certain level of statistical confidence in the results. Budget restraints limited the total sample size to about 3000 chiropractors. The allocation of the sample to states was such that the level of precision in estimates was about the same for each satate. The level of precision can be illustrated by the following example: suppose an estimation from the study of the proportion of the chiropractors in ech state that practice in towns of less than 25,000 is desired. Since we do not know very much about chiropractors, we can assume the proportion (p) that practice in these rural areas is about 50% (p=.5). We want to be 95% confident that, if we find p=.5 in our sample the true value for all chiropractors is really between 0.4 and 0.6. In this case the appropriate number of chiropractors to obtain information from in state i is:

$$n_i \quad \frac{z^2\,(1-p)}{ph^2 + \dfrac{z^2\,(1-p)}{Ni}}$$

$z = 1.96$ (to be 95% confident)
$p = 0.5$
Ni = number of chiropractors in State i
$h = 0.2$ (so that $hp = 0.1$ since we want to be confidant that the true value is between 0.4 and 0.6 or $0.5 - 0.4 = 0.1$)

A total sample of 3,265 practicing D.C.s were thus randomly selected (see Table 1). Calculation of sample size required for other p values (with the desired confidence and precision) shows that all the desired estimations and cross-tabulations would have had the desired confidence and precision for a national estimate, but certain cross-tabulations by region and most cross-tabulations by state would not. For example, estimates of the percentage of chiropractors who believe

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TABLE 1 - SAMPLING PLAN

SAMPLE DISTRIBUTION BY STATE AND RESPONSE RATE PERCENTAGE FOR SERVICE PROVIDERS

STATE	DISTRIBUTION OF D.C.s ACROSS THE U.S.	SAMPLE SIZE	NUMBER OF RESPONSES	UN-ADJUSTED RESPONSE RATE PERCENT	NOT FOR-WARDABLE	PERCENT OF TOTAL	ADJUSTED RESPONSE RATE PERCENT
ALABAMA	270	71	35	49%	5	7%	53%
ALASKA	36	27	13	48	1	4	50
ARIZONA	360	76	34	45	3	4	47
ARKANSAS	166	61	33	54	-	-	54
CALIFORNIA	3550	94	45	48	3	3	49
COLORADO	358	76	43	57	3	4	59
CONNECTICUT	133	56	28	50	4	7	54
DELAWARE	38	28	11	39	-	-	39
DIST. OF COLUMBIA	6	6	3	50	-	-	50
FLORIDA	1123	39	49	55	2	2	56
GEORGIA	399	77	43	56	5	6	60
HAWAII	43	30	18	60	1	3	62
IDAHO	90	47	31	66	1	2	67
ILLINOIS	962	88	41	47	4	5	49
INDIANA	440	79	41	52	4	5	55
IOWA	678	85	45	53	4	5	56
KANSAS	462	80	50	63	3	4	65
KENTUCKY	405	78	38	49	5	6	52
LOUISIANA	247	70	38	54	3	4	57
MAINE	68	40	28	70	-	-	70
MARYLAND	158	60	27	45	-	-	45
MASSACHUSETTS	287	72	43	60	2	3	61
MICHIGAN	872	87	45	52	3	3	54
MINNESOTA	524	81	44	54	2	2	56
MISSISSIPPI	209	66	30	45	5	8	49
MISSOURI	686	85	44	52	1	1	52
MONTANA	101	50	25	50	-	-	50

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TABLE 1 - SAMPLING PLAN Continued

SAMPLING PLAN DISTRIBUTION BY STATE AND RESPONSE RATE PERCENTAGE FOR SERVICE PROVIDERS

STATE	DISTRIBUTION OF D.C.s ACROSS THE U.S.	SAMPLE SIZE	NUMBER OF RESPONSES	UN-ADJUSTED RESPONSE RATE PERCENT	NOT FOR-WARDABLE	PERCENT OF TOTAL	ADJUSTED RESPONSE RATE PERCENT
NEBRASKA	95	48	29	60%	-	-%	60%
NEVADA	77	43	15	35	1	2	36
NEW HAMPSHIRE	156	59	28	47	2	3	49
NEW JERSEY	685	85	33	39	4	5	41
NEW MEXICO	175	62	28	45	4	6	48
NEW YORK	1482	91	31	34	3	3	35
NORTH CAROLINA	311	74	32	43	2	3	44
NORTH DAKOTA	71	41	28	68	-	-	68
OHIO	671	84	48	57	2	2	59
OKLAHOMA	346	76	34	45	6	8	49
OREGON	348	76	53	70	5	7	75
PENNSYLVANIA	1127	89	47	53	4	4	55
RHODE ISLAND	37	27	14	52	-	-	52
SOUTH CAROLINA	215	67	25	37	2	3	38
SOUTH DAKOTA	115	53	29	55	-	-	55
TENNESSEE	160	60	33	55	-	-	55
TEXAS	1042	88	40	45	1	1	46
UTAH	145	58	29	50	1	2	51
VERMONT	57	37	21	57	2	8	60
VIRGINIA	93	49	30	61	2	4	64
WASHINGTON	630	84	52	62	4	5	65
WEST VIRGINIA	65	39	20	51	-	-	51
WISCONSIN	558	82	39	48	3	4	49
WYOMING	51	34	16	47	-	-	47
TOTALS	21,383	3,265	1,638	51%	12	3%	53%

that more chiropractors could be employed in their county can be estimated for each state with reasonable precision and confidence by cross-tabulation by age of chiropractor or size of city will have to be done at the regional or national level. The level of precision expected for national estimates where p = 0.5 was about 1.8%, given the respone rate it is 2.4%; for a regional subset of 25% of respondents and p = 0.5 the level of precision is about 4.7%.

Selecting the Universe of Recent Chiropractic College Graduates

The survey of recent graduates was designed to include those D.C.s who had received their degrees within the last two years (October 1976 to December/January 1978/79). An inventory of the entire set of recent graduates (3640 from the 13 colleges which had graduated students) was decided to be necessary for several reasons. Sub-national comparisons were required by the study design thus requiring a minimum sample size of about 700. This would produce reasonably precise estimates for comparing recent graduates among the census regions. However, there are several cross-tabulations such as rural-urban and income, that required larger numbers of responses. Further, comparisons of the recent graduates with the practitioner survey are desired, which typically requires an even larger sample size. To enable the more detailed comparisons a complete inventory of recent graduates was determined to be worth the cost.

TABLE 2 - SAMPLING PLANS

SAMPLE UNIVERSE DISTRIBUTION BY COLLEGE AND RESPONSE RATE PERCENTAGES FOR RECENT GRADUATES

SCHOOL	SAMPLE SIZE	NUMBER OF RESPONSES	UNADJUSTED RESPONSE RATE PERCENT	NOT FOR-WARDABLE	PERCENT OF TOTAL	ADJUSTED RESPONSE RATE PERCENT
CLEVELAND (LA)	332	190	57%	36	11%	64%
CLEVELAND (KC)	160	87	54%	24	15%	64%
LIFE	164	109	66%	9	5%	70%
LOGAN	344	239	69%	27	8%	75%
LOS ANGELES	316	161	51%	99	31%	74%
NATIONAL	499	208	42%	42	8%	46%
NEW YORK	308	206	67%	19	6%	71%
NORTHWESTERN	8	78	72%	15	14%	84%
PALMER	938	644	69%	47	5%	72%
PASADENA	177	106	60%	16	9%	66%
SHERMAN	152	96	63%	7	5%	66%
TEXAS	109	68	62%	16	15%	73%
WESTERN STATES	36	27	75%	5	14%	87%
		2**	-	-	-	NA
	3643*	2221	61%	362	10%	68%

* TWENTY-FOUR NOT INCLUDED IN THE SAMPLE ARE DUPLICATES (2), EARLIER GRADUATION (8), NOT YET GRADUATED (1), C.A'S (13).

** SCHOOL NOT IDENTIFIED

1977-1979 Study of Education and Manpower in the Chiropractic Profession

Efforts Made to Secure a High Response

Every practicable course of action for producing a high response rate was carried out. The steps taken to ensure a high response when mailing the questionnaire to Doctors of Chiropractic included:

- Sending a locator mailing to all on the service provider list to announce the survey and to verify individual adresses prior to sample selection.

- Contacting National and State Chiropractic Asociations and requesting that they inform their members and encourage participation.

- Informing chiropractic journals through press releases and articles, encouraging broad participation.

- Mailing initial and two follow-up questionnaire packets to individual doctors and recent graduates with cover letters and instructions. The cover letter and instructions noted that cooperation was voluntary and responses would be kept confidential.

Survey Response Rate

The overall response rate for service providers was 53% (adjusted for non-forwardables) which is extraordinarily high for this type of study (see Table 1). The response rate for recent graduates was 68% (unadjusted for non-forwardables) (see Table 2). The response rates fell short of the strenuous goal of 75%. A response rate of 53% for service providers means that there are not enough returns to perform the state-by-state comparisons as originally planned. Nevertheless, the number of responses is large enough to have statistically reliable conclusions for analysis at the national and regional levels.

Non-Respondent Surveys of Graduates and Service Providers Completed

Non-respondent telephone surveys were conducted of 150 randomly selected service providers and 223 recent graduates. Over 80% of the service provider sample was contacted; only 4% were not listed, and just over 9% did not answer after six callbacks to their office telephone listing. Overall, the respondents and non-respondents do not appear to differ significantly for service providers. About 29% of recent graduates were contacted.

The low contact rate is a result of the rapid aging of the mailing lists for recent graduates which is caused by the graduates high mobility. Nevertheless, the authors believe that the data from respondent recent graduates is very good and that if more non-respondents could have been contacted any differences noted in Volume I of this report would have been smaller. Response results for non-respondents are presented in Tables 3 and 4.

TABLE 3 - SAMPLING PLAN

NON-RESPONDENT SAMPLE AND RESPONSE RATE FOR SERVICE PROVIDERS

	Number[1]	Percent
NOT LISTED	6	4
COMPLETED CALLS	124	82.7
NO ANSWER	14	9.3
NOT AT LOCATION	3	2
DECEASED OR ILL	3	2
	150	100%

[1] Included in completed calls are nine to practicing D.C.s, three of them refused to answer and six who were going to call back but did not.

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TABLE 4 - SAMPLING PLAN

NON-RESPONDENT SAMPLE AND RESPONSE RATE FOR RECENT GRADUATES

	Number[1]	Percent
NOT LISTED	125	56
COMPLETED CALLS	64	28.5
NO ANSWER	28	12.6
WERE PRACTICING BUT NOT THERE NOW	4	1.8
NOT AT LOCATION	2	.9
	223	100.0%

[1] Included in completed calls were nine to practicing D.C.s who were going to call back but did not.

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APPENDIX V

WEIGHTED STATE RESPONSE TO CREATE MORE ACCURATE STUDY RESULTS

APPENDIX V

WEIGHTED STATE RESPONSE TO CREATE MORE ACCURATE STUDY RESULTS

Weighting of the Service Provider responses was required to present results more accurately. This is because, when using a probability sampling procedure, one over-samples proportionately in states with small numbers of chiropractors vs. states in which there are more chiropractors. Thus, one must weight the responses from each state so that the responses from "smaller" states do not impact the results more than they should. For example, California has nearly 50 times the number of Doctors of Chiropractic as Alaska; however in this survey sample there were only 3.5 times as many selected from California as from Alaska. To properly weight the responses, the sample percent of D.C.s for each state was divided into the total D.C.s for each state. The resulting figure was used to weight the responses for that state. For example, in California, the percent of D.C.s in the sample equals 2.88%. The percent of the D.C.s in California equals 16.6%. The figure 2.88% was divided into 16.6%. The resulting figure, 5.76 was used to weight all of the responses from the state of California. This process was carried out for each state in a similar fashion. (See Table 1 for the proportion of D.C.s in each state in the universe of D.C.s and the random sample for the study.)

TABLE 1 - WEIGHTED RESPONSE

PERCENTAGE OF D.C. POPULATION BY STATE AND SAMPLE PERCENTAGE BY STATE FOR SERVICE PROVIDERS

STATE	TOTAL D.C.s PERCENT	SAMPLE D.C.s PERCENT
ALABAMA	1.26%	2.17%
ALASKA	.17	.83
ARIZONA	1.68	2.33
ARKANSAS	.78	1.87
CALIFORNIA	16.60	2.88
COLORADO	1.67	2.33
CONNECTICUT	.62	1.72
DELAWARE	.18	.86
DIST. OF COLUMBIA	.03	.18
FLORIDA	5.25	2.73
GEORGIA	1.87	2.39
HAWAII	.20	.92
IDAHO	.42	1.44
ILLINOIS	4.50	2.70
INDIANA	2.06	2.42
IOWA	3.17	2.60
KANSAS	2.16	2.45
KENTUCKY	1.89	2.39
LOUISIANA	1.16	2.14
MAINE	.32	1.23
MARYLAND	.74	1.84
MASSACHUSETTS	1.34	2.21
MICHIGAN	4.08	2.66
MINNESOTA	2.45	2.48
MISSISSIPPI	.98	2.02
MISSOURI	3.21	2.60
MONTANA	.47	1.53
NEBRASKA	.44%	1.47%
NEVADA	.36	1.32
NEW HAMPSHIRE	.73	1.81
NEW JERSEY	3.20	2.60
NEW MEXICO	.82	1.90
NEW YORK	6.93	2.79
NORTH CAROLINA	1.45	2.27
NORTH DAKOTA	.33	1.26
OHIO	3.14	2.57
OKLAHOMA	1.62	2.33
OREGON	1.63	2.33
PENNSYLVANIA	5.27	2.73
RHODE ISLAND	.17	.83
SOUTH CAROLINA	1.01	2.05
SOUTH DAKOTA	.54	1.62
TENNESSEE	.75	1.84
TEXAS	4.87	2.70
UTAH	.68	1.78
VERMONT	.27	1.13
VIRGINIA	.43	1.47
WASHINGTON	2.95	2.57
WEST VIRGINIA	.30	1.19
WISCONSIN	2.61	2.51
WYOMING	.24	1.04
TOTALS	100.0% (21,383)	100.03% (3,265)

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APPENDIX VI

CHIROPRACTIC COLLEGES

APPENDIX VI

CHIROPRACTIC COLLEGES

Active Chiropractic Colleges and Their Addresses

Cleveland Chiropractic College, 3700 Troost, Kansas City, MO 64109
Cleveland Chiropractic College, 590 North Vermont Avenue, Los Angeles CA 90004
Life Chiropractic College, 1269 Barclay Circle, Marietta GA 30060
Logan College of Chiropractic, 430 Schoettler Road, Chesterfield MO 63017
Los Angeles College of Chiropractic, 920 E. Broadway, Glendale CA 91205
National College of Chiropractic, 200 E. Roosevelt Road, Lombard IL 60148
New York College of Chiropractic, 255 Valentine's Lane, Old Brookville NY 11545
Northwestern College of Chiropractic, 1834 S. Misissippi Boulevard,
St. Paul MN 55116
Palmer College of Chiropractic, 1000 Brady Street, Davenport IA 52803
Pasadena College of Chiropractic, 774 E. Green Street, Pasadena CA 91101
Sherman College of Straight Chiropractic, 555 Reidville Road,
Spartanburg SC 29304
Texas Chiropractic College, 5912 Spencer Highway, Pasadena TX 77505
Western States Chiropractic College, 2900 N.E. 132nd Avenue, Portland OR 97230

New Colleges in Operation (but have not yet graduated a class)

Adio College of Chiropractic, 1405 Frosty Hollow Road, Levittown PA 10956
Northern California College of Chiropractic, 655 Arastradero Road,
Sunnyvale CA 94306
Pacific States Chiropractic College, 879 Grant Avenue, San Lorenzo CA 94580

COLLEGES Continued

Previously Existing Colleges

Advanced College of Chiropractic
Akron College of Chiropractic
American College of Chiropractic
American University
Antigo School of Chiropractic
Atlantic States Chiropractic Institute
Bebout Chiropratic College
Blodgett
Bremer Chiropractic College
Bronx Chiropractic
Cale Chiropractic School
California Chiropractic College
California College of Natural Healing Arts
Carroll School of Chiropractic
Carver Chiropractic College
Central States College of Chiropractic
Chiropratic Institute of New York (merged into New York College)
Clewell Chiropractic College
Colorado Chiropratic University
Columbia College of Chiropractic (became New York College of Chiropractic)
Colvin Chiropractic College
Connecticut College of Chiropractic (became New York School of Chiropractic)
Dallas Chiropractic College
Darling & Darling
Davenport College and Sanitarium of Chiropractic
Davenport School of Chiropractic
Detroit College of Chiropractic
Dickinson Chiropractic College
Doughty-Marsh College of Chiropratic
Duval School of Toronto
Eastern College of Chiropractic
Eastern Chiropractic Institute
Eastern States Chiropractic Institute
Eclectic School of Drugless Healing and College of Physiological Therapeutics
Grant School of Chiropractic
Haris Chiropractic College, Inc.
Hollywood College of Chiropractic, Inc.
Hunter School of Chiropractic
Institute of The Science and Art of Chiropractic
International Chiropractic College
Kansas State Chiropractic College
Kent College of Chiropractic
Lafayette
Lincoln College (merged into National College)

Marchand College of Chiropractic
Mecca
Metropolitan and Cleveland College
Midwest College of Chiropractic
Midwestern University College of Chiropractic
Minnesota (merged/became Northwestern College)
Missouri Chiropractic College
Missouri Chiropractic Institute
Modern School of Chiropractic
Nashville Chiropractic College
National Metropolitan
National School of Chiropractic
National University of Sciences
Nebraska Chiropractic College
New York College of Chiropractic
New York Institute of Chiropractic (amalgamated with C.I.N.Y.)
New York School of Chiropractic
O'Neil College of Chiropractic
Palmer-Gregory School of Chiropractic
Palmer School of Chiropractic
Peerless College of Chiropractic
Philadelphia College of Chiropractic
Pittsburgh College of Chiropractic
Portland Chiropractic College
Progressive College of Chiropractic
Ratledge System of Chiropractic Schools
Reaver School of Chiropractic
Rest View University of Chiropractic
Ross College of Chiropratic
San Francisco Chiropractic College
Seattle College of Chiropractic
Sierra States University
Southern California Chiropractic College
Springfield College of Chiropractic
St. Louis Chiropractic College
Standard School of Chiropractic
Standard Chiropractic Institute
Temple of Knowledge Chiropractic Institute
Union College of Chiropractic
Universal Chiropactic College
University Natural Healing Arts
Washington School of Chiropractic
West Coast Chiropractic College
Western Chiropractic College

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APPENDIX VII

ADVISORY GROUP MEMBERS
CHIROPRACTIC COLLEGE PRESIDENTS
DHEW REVIEW PANEL MEMBERS
FACTS BOARD MEMBERS

APPENDIX VII

ADVISORY GROUP AND REVIEW PANEL MEMBERS

Listed in this appendix are four groups of individuals who helped during important phases of the study -- research design/pre-test, data collection and interpretation of results.

- The Advisory Group who were experts in the chiropractic profession
- The Presidents of the chiropractic colleges which were in operation and had graduated Doctors of Chiropractic before 1979
- The Review Panel assigned to the project by by the Departmennt of Health, Education and Welfare (DHEW)
- The members of the FACTS Board of Directors

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APPENDIX VIII

ADVISORY PANEL HANDOUTS FOR MODIFIED DELPHI TECHNIQUE REGARDING INFLUENCE ON DOCTOR OF CHIROPRACTIC/POPULATION RATIOS

APPENDIX VIII

ADVISORY PANEL HANDOUTS FOR MODIFIED TECHNIQUE REGARDING INFLUENCES ON DOCTOR OF CHIROPRACTIC/POPULATION RATIOS

One of the major goals of an Advisory Group planning meeting was to derive practitioner/population estimates which this panel of experts would feel was adequate to service the nation as a whole. The members' estimates were averaged, and the average would be used as one base of comparison for determining whether there is an adequate supply of chiropractors to service individual states and the nation as a whole. The Members also reported the most important factors they felt would either increase or decrease the number of practicing Doctors of Chiropractic. (At the time of this meeting no detailed comparative analysis of under/over-served areas using these estimates had been made. One can scan Table 1 and sense which states may be under/over served, but no firm criteria had been developed yet. The results of this meeting are presented to give the reader a better understanding of one of the indicators of adequacy of supply used in this report.)

Modified Delphi Techniques Used for D.C. Population Ratios

To develop the estimates we used a modified Delphi technique. During the process the researchers used to derive the estimates, they did the following:

- Explained the Delphi method to the group; i.e., that it is a forecasting or estimating technique widely used in industry to pool/average potentially divergent expert opinions and then use the average (and range of opinion) as a base estimate for market size, production runs, or in this case, a professional/population ratio.

- o Distributed to the group professional population ratios for other health professions which we thought might be useful for making their estimates. These included D.C.s, M.D.s, Nurses, Anesthesiologists and others (See Table 1).

- o Requested the group to list what factors would be likely to cause increases/decreases in the number of D.C.s employed.

- o Asked the group to develop three estimates of D.C.s per 100,000 population. These were:

  - one estimate based on today's conditions and environment
  - a second based on their most optimist assumptions about the future conditions which would likely cause an increase in the number of D.C.s which could be employed
  - a third based on their most pessimistic assumptions which would likely cause a decrease in the number of D.C.s employed

- o Discussed the estimates and the reasons why the number of D.C.s might increase or decrease.

- o Asked for a second estimate of D.C.s per 100,000 population who could be employed under today's conditions to see if the discussion had changed the group's opinions or estimates.

TABLE 1 - DELPHI TECHNIQUE

PROFESSIONALS ACTIVE/EMPLOYED PER 100,000 POPULATION*

	D.C.	R.N.	M.D. ANES.	R.N. ANES.	D.P.M.	D.O.	P.T.	M.D.
	**17,559	778,470	11,106	12,162	8,261	10,020	15,637	356,560
National	8	380	5.3	5.8	3.4	7.6	4.9	169
Alabama	7	223	2.6	8.7	0.5	.1	4.3	103
Alaska	5	422	3.1	4.6	0.9	.3	1.1	104
Arizona	12	428	5.1	5.1	2.6	14.9	10.4	183
Arkansas	6	190	2.4	6.1	1.0	.5	4.7	103
California	10	334	7.8	3.3	3.7	.6	9.7	219
Colorado	9	491	5.9	4.7	2.6	9.6	15.1	187
Connecticut	4	579	6.7	4.8	5.6	1.1	13.3	224
Delaware	3	514	4.2	4.6	3.1	4.4	10.6	155
Dist. of Columbia	1	673	11.8	4.4	6.8	1.5	16.0	464
Florida	10	353	5.2	6.8	3.2	7.3	7.7	183
Georgia	5	263	4.0	5.4	1.4	1.3	5.7	126
Hawaii	3	380	4.1	8.3	1.0	2.0	10.5	186
Idaho	8	329	3.3	8.1	1.9	2.9	6.1	102
Illinois	6	397	4.7	5.8	5.1	2.2	6.4	164
Indiana	6	298	5.1	1.7	2.4	2.6	5.7	116
Iowa	20	413	3.6	5.4	2.9	11.1	7.7	113
Kansas	25	400	3.7	6.2	1.9	6.6	7.7	138
Kentucky	12	256	3.6	4.2	1.5	.8	5.2	122
Louisiana	4	245	2.8	9.2	1.0	.4	4.4	133
Maine	3	464	5.6	5.3	1.7	16.2	10.5	133
Maryland	4	363	6.4	4.1	3.2	.6	6.8	218
Massachusetts	4	649	13.3	5.3	6.0	2.3	14.2	235
Michigan	9	335	5.9	6.7	3.3	19.2	6.4	144
Minnesota	12	486	2.0	12.8	1.8	1.1	8.9	173
Mississippi	9	226	1.9	7.3	.4	.04	3.1	94
Missouri	21	312	3.5	7.0	1.7	17.9	7.6	148
Montana	13	451	3.5	9.2	1.9	2.4	6.6	116
Nebraska	5	443	2.7	10.1	2.4	1.3	8.1	134
Nevada	9	323	6.3	5.7	2.6	3.2	9.6	128
New Hampshire	22	572	5.8	3.9	2.9	2.0	14.4	162
New Jersey	8	432	5.5	3.1	4.8	8.3	6.9	174
New Mexico	10	258	2.7	6.9	2.4	9.4	7.0	130
New York	8	485	8.5	3.5	6.8	2.2	7.2	256
North Carolina	5	318	1.9	8.8	1.0	.4	6.5	131
North Dakota	11	455	1.7	13.4	.8	1.0	10.3	107
Ohio	5	389	5.8	4.2	4.8	8.2	6.3	146
Oklahoma	12	246	3.6	5.3	1.9	12.2	6.3	114
Oregon	9	399	6.5	6.7	1.6	6.3	10.3	171
Pennsylvania	8	519	5.1	9.8	5.7	10.5	7.0	169
Rhode Island	4	485	6.7	2.9	5.7	7.6	8.9	195
South Carolina	7	295	2.4	6.2	0.6	.2	4.3	114
South Dakota	16	462	1.5	14.1	1.8	3.3	6.1	90
Tennessee	3	233	3.6	6.4	1.0	1.2	5.0	139
Texas	10	240	4.5	6.5	1.7	5.7	7.1	135
Utah	6	285	7.8	4.9	2.7	1.3	6.9	155
Vermont	9	612	7.1	3.9	1.5	6.5	15.8	207
Virginia	2	348	3.8	6.3	1.5	.8	6.9	149
Washington	12	420	7.2	7.0	1.9	3.7	10.1	169
West Virginia	2	350	3.0	9.5	2.2	4.0	5.2	124
Wisconsin	11	416	5.1	7.1	2.8	3.2	9.9	136
Wyoming	12	425	4.1	7.8	2.0	2.3	8.3	109

*The professions from left to right are: Chiropractor, Registered Nurse, Anesthesiologist, Nurse Anesthetist, Podiatrist, Osteopath, Physical Therapist and Physician.

**Totals for each profession. Health Resources Statistics, The national Center for Health Statistics, Washington D.C., 1975.

Results of the Delphi Process

The results are presented below in Tables 2 and 3. looking at the averages which exclude extremes (the last row of table 2), it is interesting to note that even under the most pessimestic conditions the group predicted a slight increase in the number of chiropractors from 8 to 9.3 per 100,000 population (or from 16,000 to 18,600 in actual numbers, Table 3). Given the most optimistic conditions, the group projected an increase from 8 to 26.5 per 100,000, or from 16,000 to 53,000 D.C.s in actual practice. Under today's conditions the Advisory Group believes between 24,600 and 28,200 D.C.s could be employed. This is an increase of 50% to 75% in the number of D.C.s practicing at the time of the estimate.

The factors the Advisory Group believed likely to cause an increase/decrease in the number of D.C.s which could readily be employed appear in Table 4.

The three most frequently mentioned topics related to causing an increase were:

- Expanded/increased reimbursement for services
- Greater public education
- Wider scope of practice

The three factors most likely to cause a decrease were:

- Decreased reimbursement for services
- Limits on practice by government regulation
- Lack of professional recognition

TABLE 2 - MODIFIED DELPHI TECHNIQUE

ESTIMATES OF CHIROPRACTOR/100,000 POPULATION
UNDER CERTAIN CONDITIONS
RATIO

	First Estimate			Second Estimate
RANGE OR AVERAGE	Today's Conditions	Optimistic Conditions	Pessimistic Conditions	Today's Conditions
High	24	64	16	22
Low	8	10	4	8
An Average (including high & low)	13.3	29.1	9.5	14.4
An Average (excluding high & low)	12.3	26.5	9.3	14.1

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TABLE 3 - MODIFIED DELPHI TECHNIQUE

ESTIMATES OF CHIROPRACTOR/100,000 POPULATION UNDER CERTAIN CONDITIONS NUMBERS

	First Estimate			Second Estimate
RANGE OR AVERAGE	Today's Conditions	Optimistic Conditions	Pessimistic Conditions	Today's Conditions
High	48,000	128,000	32,000	44,000
Low	16,000	20,000	8,000	16,000
An Average (including high & low)	26,600	58,200	19,000	28,800
An Average (excluding high & low)	24,600	53,000	18,600	28,200

1977-1979 Study of Education and Manpower in the Chiropractic Profession

TABLE 4 - MODIFIED DELPHI TECHNIQUE

FACTORS LIKELY TO CAUSE INCREASES/DECREASES IN NUMBERS OF CHIROPRACTORS EMPLOYED FULL-TIME IN THE UNITED STATES

FACTOR	Number of Times Mentioned
Leading to Increases:	
Increased/expanded reimbursement	10
Public education about chiropractic	9
Wider scope of practice	4
Expanded School aid	3
Better distribution of Doctors of Chiropractic	2
Scientific acceptance	2
Greater number of students	1
Anti-drug society	1
Leading to Decreases:	
Less reimbursemnts	10
Limits on practice (governmental, professional, etc.)	5
Lack of public recognition/acceptance	4
Lack of aid to colleges	2
Cost of care becomes too high	1
Cost of education becomes too high	1
Competition with other providers	1

1977-1979 Study of Education and Manpower in the Chiropractic Profession

QUESTIONNAIRE

MODIFIED DELPHI TECHNIQUE REGARDING INFLUENCES ON DOCTOR OF CHIROPRACTIC/POPULATION RATIOS

1. What is your best estimate of the number of Doctors of Chiropractic per 100,000 population which could be readily employed full-time, given conditions of practice as they exist today (that is, given present third party reimbursement policies, public attitudes, state regulations, etc.)?

2. Listed in order of their importance, what factors are likely to cause an increase in the number of chiropractors that would be readily employed full-time?

   A. ____________________

   B. ____________________

   C. ____________________

   D. ____________________

3. Listed in order of their importance, what factors are likely to cause a decrease in the number of chiropractors that could be readily employed full-time?

   A. ____________________

   B. ____________________

   C. ____________________

   D. ____________________

4. What is your most optimistic estimate of the number of chiropractors per 100,000 population which could be readily employed full-time given the conditions which you have described in Question 2 above?

   ESTIMATE: ________Chiropractors per 100,000 population

5. What is your most pessimistic estimate of the number of chiropractors per 100,000 population which could be readily employed full-time given the conditions which you have described in Question 3 above?

   ESTIMATE: ________Chiropractors per 100,000 population

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